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ABSTRACT

This literature review focuses on the school-to-work transition, especially as it relates to school reform. The dual focus of the review highlights issues surfacing from research and evaluation of theory and practice in the field, as well as review and evaluation of programs that fall under three types of school-to-work transition reform initiatives: programs that integrate work into learning experiences; curricular links between academic and vocational disciplines; and transition, counseling, and information programs. Information for the literature review was gathered in the following ways: searches of the in-house collection of the Academy for Educational Development; direct contact with targeted organizations and individuals, information from databases that abstract books and journal articles; and a review of recent publications, journals, conference programs, and bibliographies. The review is organized in nine sections that cover the following topics: (1) the impact of economic, political, and technological change; (2) core transition components and school reform; (3) workforce readiness; (4) articulation between academic and vocational skills; (5) contextual education; (6) international approaches to the school-to-work transition; (7) apprenticeship in the United States; (8) youth work experience in naturally occurring jobs; and (9) school-business collaboration and partnerships. Each section consists of an introduction that synthesizes the information contained in the 157 annotated entries in the second half of the document. (KC)

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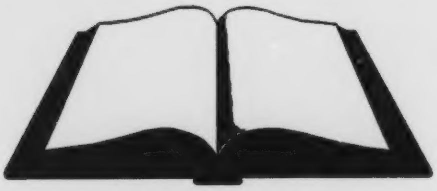

LITERATURE REVIEW AND ANNOTATED BIBLIOGRAPHY

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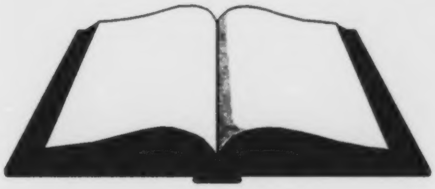

LITERATURE REVIEW AND ANNOTATED BIBLIOGRAPHY

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Washington, D.C.

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Preface

The decade of the 90's has produced a tidal wave of programs, policies, reports, and perspectives on school-to-work transition. Our review and annotated bibliography of the literature on school reform and youth transition takes stock at this point in time of many of these efforts. We have organized the review around nine broad topic areas, recognizing that there is naturally some overlap among the topics.

Rather than engage in a traditional academic review and synthesis exercise, we decided to trace out briefly the lessons from the literature within each topic area and let the annotations identify key issues, lessons, and findings. In this way we hope the document is of use to a wide audience of practitioners, policy makers, researchers, and program developers.

The reality of the current state of the field makes a comprehensive review impossible. It seems that every day a new report, paper, or article appears regarding the problems and issues of youth transition. Under each topic, therefore, we have selected a representative range of the available literature. We have tried to provide the most up-to-date and seminal pieces but realize that we have probably missed an important article here or a critical evaluation there.

Our work on the overall evaluation project, and in this state of the art review, is guided by a National Advisory Panel. The members of the Panel have provided us with direction and advice on the issues to be explored and leads on where to find the most up-to-date and important research, practice, and policies on school reform for successful youth transition.

The National Advisory Panel comprises the following individuals:

Paul Barton
Director
Policy Information Center
Educational Testing Service

Cynthia Brown
Director
Resource Center on Educational Equity
Council of Chief State School Officers

Jacqueline P. Danzberger
Director of Governance Programs
Institute for Educational Leadership

Sandra Jibrell
Senior Planning Associate
Annie E. Casey Foundation

Anita Lancaster
Assistant Director
Defense Manpower Data Center

Hilary Pennington
President
Jobs for the Future

Franklin Smith
Superintendent
District of Columbia Schools

Nevzer Stacey
Senior Program Officer
Office of Educational Research and
Improvement

David Stern
Professor, School of Education
University of California

Ray Valdivieso
Vice President
Academy for Educational Development

Although the U.S. does not have a school-to-work transition system, there is a mosaic of programs that help students see more clearly the connection between school and future work. At the outset of our task, we knew that we could not review and synthesize all the available experience and commentary about school reform for youth transition. Rather, we have tried to provide a sufficient base of information on critical issues and topics to provide guidance on the nature, quality, and impact of youth transition programs. Just as the national focus on the transition will continue to shift and expand, so will our efforts to maintain a useful, up-to-date resource base for all those concerned with school reform and youth transition.

Ivan Charner
Project Director

I. INTRODUCTION

The United States is the only industrialized nation in the world that has no institutionalized school-to-work transition system to help its young people navigate successfully between their learning and work experiences. And until relatively recently, little national attention has been paid to this serious disadvantage to both our youth and our society. Now, however, it seems that, just as the buzzwords for the 1980's were "school reform," the catchphrase for the 90's is the "school-to-work transition," an area that is now the focus of a variety of school reform initiatives.

Current transition efforts are characterized by a direct linkage between school and subsequent employment and by the recognition that a multiplicity of institutions are involved in the school-to-work transition and must be players in any national policy. Many of these efforts stress a broader role for business, both in responding to the needs of business and industry for well-prepared youth and in strengthening the instruction and preparation of youth for work. They also recognize the importance of including as core components a wide range of services that encompass academic skills, career guidance, work experience, job preparedness, and job placement assistance.

The last five years have seen an enormous increase in the attention being focused on the transition in the substantive literature as well as the popular press. Much of this attention can be traced to the rapid pace of economic, political, and technological change that is occurring on local, national, and global levels. With the U.S. facing changing demographics, business' need for a more productive and competitive workforce, growing concern about the economic futures of many of our youth, and the increasing strength of our international competitors, a flood of information has been released that relates to the school-to-work transition and what can be done to improve the process, especially for our young people who do not complete college in the conventional lock-step sequence (the traditional path being going directly from high school to further education and, after completion of schooling, entering the workforce).

Too often the phrase "school-to-work transition" implies that there is one direct path for all young people that leads them from the classroom into the workplace. In fact, what once may have been considered the traditional route for the majority of youth (completing school and then entering full-time employment) has given way to a series of variations that reflect more accurately the needs and condition of youth in our society today. Our use of the term "school-to-work transition" includes, in addition to young people leaving or completing high school and seeking full-time work, those who enter the workforce and go on to receive employer-provided training; those who work and continue their education simultaneously; those who complete relatively new programs like the Academies or tech-prep programs and then enter the full-time labor force or go on to continued postsecondary education; those who enter the labor force for a number of years and then return for additional postsecondary education or training; and finally, students who participate in a range of high school programs that link education to work regardless of whether the student is anticipating continued education or entry into the workplace.

Our task in this state of the art literature review and annotated bibliography is to sort through the many publications dealing with the transition from school to work and, without duplicating the admirable work that has been done by others, synthesize the latest available information on programs and approaches relating to both the theory and practice of school-to-work transition as a part of school reform. School-to-work transition may in fact be driven by school reform or may drive some of the changes that are being incorporated as a part of restructuring efforts. The literature taken as a whole indicates a consensus that school-to-work transition cannot be accomplished as an activity separate from the school reform movement; it is an integral component in any effective reconfiguration of our current education system.

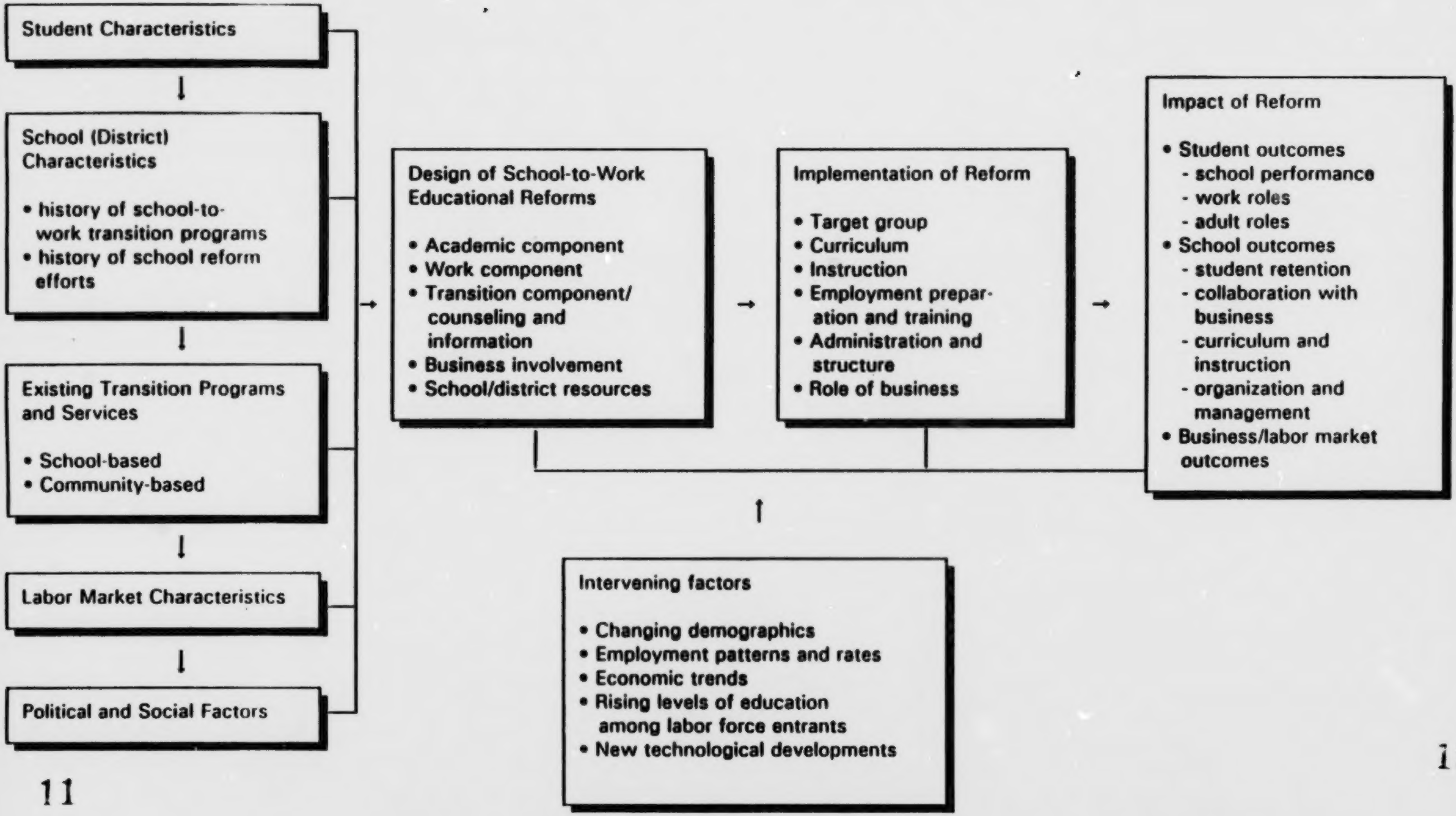
Methodology

AED conducted this state of the art literature review to provide a comprehensive information base on school-to-work transition programs and issues. The dual focus of this review highlights cross-cutting issues surfacing from research and evaluation of theory and practice in the field, as well as review and evaluation of programs that fall under three types of school-to-work transition reform initiatives: programs that integrate work into learning experiences, curricula links between academic and vocational disciplines, and transition, counseling, and information programs.

The review was guided by the overall project's conceptual framework (see Figure 1), which was used to identify major areas of interest and critical elements and relationships. The framework outlines the relationship among the community, the design and implementation of reform initiatives, and their effects on student and business/labor market outcomes. The first column of components reflects the community and institutional context under which reform initiatives take place. The second column represents the critical components in the design of school-to-work reform efforts. The third column includes the elements that need to be considered in implementation of reforms. The final column contains the anticipated and actual student, school, and business outcomes brought about by the reform initiatives. Changes in the outcomes result from the impact of the reform initiatives and any intervening factors.

We employed four methods of searching for relevant information. First, we analyzed AED's extensive in-house collection of reports, articles, and other information on school-to-work transition issues. Second, we targeted appropriate organizations and individuals, including our National Advisory Panel, and contacted them directly. Third, we utilized information from

Figure 1: Conceptual Framework


Student Characteristics
School (District) Characteristics
• history of school-to-work transition programs
• history of school reform efforts
Existing Transition Programs and Services
• School-based
• Community-based
Labor Market Characteristics
Political and Social Factors
Design of School-to-Work Educational Reforms
• Academic component
• Work component
• Transition component/ counseling and information
• Business involvement
• School/district resources
Implementation of Reform
• Target group
• Curriculum
• Instruction
• Employment preparation and training
• Administration and structure
• Role of business
Impact of Reform
• Student outcomes
- school performance
- work roles
- adult roles
• School outcomes
- student retention
- collaboration with business
- curriculum and instruction
- organization and management
• Business/labor market outcomes
Intervening factors
• Changing demographics
• Employment patterns and rates
• Economic trends
• Rising levels of education among labor force entrants
• New technological developments

databases which abstract books and journal articles. Fourth, we systematically reviewed recent relevant publications, journals, and conference programs and searched through the bibliographies.

Specific information sources we reviewed include the following:

- U.S. Department of Education sources (including the Office of Educational Research and Improvement and the National Diffusion Network);
- other federal agencies (including the U.S. General Accounting Office's Human Resources Division and the U.S. Department of Labor's Employment and Training Administration and Bureau of Labor Statistics);
- school-to-work transition databases (including ERIC Clearinghouse on Adult, Career, and Vocational Education and the National Youth Employment Coalition Information Center);
- current and past journal issues (including Employment and Training Reporter and Partners in Education Journal, Educational Leadership, and Vocational Training News);
- publications, newsletters, and conference programs from appropriate universities (including Cornell University Center for Advanced Human Resource Studies, New York State School of Industrial and Labor Relations, University of Illinois National Center for Research in Vocational Education, Ohio State University Center on Education and Training for Employment, University of California National Center for Research in Vocational Education, and Brandeis University Center for Human Resources);
- publications, newsletters, and conference programs from other appropriate organizations (including Public/Private Ventures, Jobs for the Future, Institute on Education and the Economy, National Center on Education and Employment, Institute for Technological Solutions, The Business Roundtable, National Alliance of Business, Educational Testing Service, Council of Chief State School Officers, National Commission for Employment Policy, Education Resources Group, Education Writers Association, RAND Corporation, National Governors Association, Children's Defense Fund, American Association for School Administrators, National Youth Employment Coalition, The Conference Board, The William T. Grant Foundation Commission on Youth and America's Future, National Center on Education and the Economy); and
- informal networking at organizational meetings and with individual educators, academics, and specialists.

The following steps were taken to implement the state of the art review:

1. Analysis of existing reviews and synthesis on school-to-work transition developed by AED.
2. Selection of broad topic areas related to school-to-work transition.
3. Identification of research and evaluation studies through other sources.
4. Development of a framework/outline for the review.
5. Abstracting of materials.
6. Preparation of draft state of the art review: including an annotated bibliography, detailed review, and synthesis (exemplary programs and cross-cutting issues).

Organization of the Review

This report is divided into the following nine sections:

- The Context: The Impact of Economic, Political, and Technological Change
- Core Transition Components and School Reform
- Workforce Readiness
- Articulation Between Academic and Vocational Skills
- Contextual Education
- International Approaches to the School-to-Work Transition
- Apprenticeship in the United States
- Youth Work Experience in Naturally Occurring Jobs
- School-Business Collaboration and Partnerships

Each section consists of an introduction that synthesizes the information contained in the annotated entries that follow alphabetically in the second half of this document. The literature included in each section was chosen to represent the latest thinking and information available on the topic and to give a broad perspective on the range of views and related concerns. In some areas, a large number of documents necessitated our selecting just a sampling of the literature;

in other areas, less information was available, reflecting a lack of relevant materials or the very recent nature of the attention being focused on the issue.

All the documents that were reviewed, including those not abstracted in this annotated bibliography, are listed in Appendix A and constitute part of the complete annotated bibliographic database established by the project. Additional information will be reviewed and added to this database throughout the life of the project in an effort to maintain a current, updated resource listing on the issue of school-to-work transition as a part of education reform.

II. LITERATURE REVIEW

A. The Context: The Impact of Economic, Political, and Technological Change

Rapid changes in technology and increasing international competition have led employers to seek new strategies for producing goods and providing services. These changes require a high performance organization where all workers have more responsibility and decision-making functions. Such organizations need employees who are well trained and possess the skills and knowledge necessary for their new functions. In addition, as learning becomes an integral part of the work itself, workers will need to be better prepared to avail themselves of training and learning opportunities in the workplace (National Center on Education and the Economy, 1990).

One challenge faced by educators and employers is how to prepare students for their changing roles in the workplace and how to ensure that the economy uses the full capacity and potential of our youth. At a point in our history when education beyond high school is increasingly viewed as necessary to meet the educational and skill requirements of many current and emerging careers, approximately one half of U.S. youth do not attend college and about half of those who do will not complete their studies. For many of these youth, particularly those who are members of the growing underclass, the transition between school and work has become problematic (U.S. GAO, 1990b). Many graduate high school with few or no job-related skills; often their academic preparation is weak.

Those who drop out before high school graduation, many of them caught up in an inescapable world of poverty, fare worse with even more limited job and career prospects. Until the age of 25, these youth are likely to move from job to job, usually in the service sector of the economy where they find jobs that are low-skilled, poorly paid, and offer few opportunities for further training or advancement.

The result for some young people is a life of poverty. For many others the prospect is employment that pays less than a living wage and offers neither self-respect nor a future (William T. Grant Foundation Commission on Work, Family, and Citizenship, 1988). Unemployment rates among all youth are high (twice that for adults) and not responsive to economic upturns. The official 1991 unemployment rate for high school graduates below the age of 24 was 13 percent for whites, 17 percent for Hispanics, and 29 percent for Blacks. In reality, these frighteningly high rates are probably even worse. If young people drop out of school, their prospects for not getting a job are one out of four, and their employment prospects do not improve with time.

Related to these employment patterns are the prospects for further training and career mobility. Employers tend to invest training dollars in their best educated employees. Only 45 percent of high school dropouts received training from their employers compared to 71 percent of high school graduates and 79 percent of college graduates (Vaughan and Berryman, 1989). Also, those who are trained on one job are more likely to be trained on subsequent jobs.

Recent attention to the "forgotten half" of students who do not follow the traditional high school to college sequence stems from changes in the economy and the inadequate response by schools, businesses, and government. A number of factors make the school-to-work transition issue critical at this time.

First, the changing demographics of the U.S. population find fewer young people and a general aging trend (U.S. DOL, 1989a). Second, a set of changes in the labor market suggests a shift from manufacturing to a service economy with the resulting reduction in low-level high-pay jobs in manufacturing and growth in low-skilled low-pay jobs in the service sector of the economy (Johnston and Packer, 1987). According to the U.S. General Accounting Office (1992), while there is general agreement that the demographic make-up of the labor force will continue to change, critics differ on the likelihood of labor shortages and skill gaps. Johnston and Packer argue that there will be a need for higher order and technological skills for a growing number of jobs in all sectors of the economy. Others assert that labor shortages will be limited in scope and impact and that high-skill technical jobs will represent only four percent of all jobs by the year 2000.

Third, an increasing number of young people are "at-risk" of not becoming productive members of society. Finally, as the institutions of the family and community have changed dramatically, society once again has turned to the schools to carry out the transition process, an enormous role for which schools have not received the resources or the required training and which some critics view as a dangerous shift in the focus of attention away from "the nation's economic malaise." These critics argue that while our education system is in need of major improvement, business has done much to contribute to the American worker's lowered competitiveness and offers little in the way of an economic agenda aimed at absorbing the highly skilled workers it is demanding from the schools (Weisman, 1992).

B. Core Transition Components and School Reform

In many communities, transition programs are a part of major school reform and restructuring efforts. School-to-work transition may in fact be driven by school reform or may drive some of the changes that are being incorporated as a part of restructuring efforts. The literature taken as a whole indicates a consensus that school-to-work transition cannot be accomplished as an activity separate from the school reform movement. It is an integral component in any effective reconfiguration of our current education system.

There is a growing recognition that school reform requires the full commitment of all partners to systematically change the way we approach education in the U.S. Schools alone cannot be expected to develop effective strategies for providing young people with the knowledge, skills, and support they need to become creative and productive members of society. At the same time that educators have reached out to the community for advice and support, businesses have become aware that the local and national economic interest is increasingly at risk.

Furthermore, the absence of an effective system to help non-college-bound youth make a smooth transition to the primary labor market has cost the U.S. socially and economically. Half of our young people are experiencing difficulties finding long-term, productive employment. Currently there is no system in place to help them access such opportunities. Charner (1990) suggests that such a system would comprise a set of services essential to an effective transition, including information on employment and career options, career counseling, oversight of student work experience, linkages to employers, and other essential services, similar to those offered in other countries. Byrne et al. (1992) point to the Quality Connection Consortium, initiated by the National Alliance for Business, as a school-to-work transition model where employers take direct responsibility for a portion of the educational enterprise.

The Council of Chief State School Officers (1991a) also views the improvement of transition connections between school and employment as a critical catalyst in the restructuring of elementary and secondary education. The Council offers a set of nine principles for improving the preparation of youth for gainful employment and continued learning, and a set of ten actions which should be taken in each state to establish curriculums that promote a school-to-work system.

The National Center on Education and the Economy (1990) has received a great deal of public attention focusing on its recommendations which provide a framework for developing a high quality American education and training system, closely linked to high performance work organizations. The recommendations include: a national benchmarked educational performance standard for all students; state responsibility for students achieving Certificates of Initial Mastery; a comprehensive system of technical and professional certificates and associates degrees; incentives for employers to invest in further education and training for their workers; and a system of Employment and Training Boards to organize and oversee the proposed school-to-work transition programs and training systems. Recently, a series of bills have been introduced in the U.S. Congress that build on these recommendations for a national system.

Fraser and Charner (1993) recommend setting up local Community Youth Development Councils, with a satellite Office of Youth Transition Services in every high school. Because no single institution acting alone can address the education-work needs of youth and employers, these local collaborative councils would be responsible for overseeing the movement of all the community's young people between school and work or further education and training.

Another approach that has been advocated by the Director of the National Center for Research in Vocational Education is "high schools with character," which would include: the integration of academic and vocational studies; cooperative student learning; collegial work among teachers; and a special school identity, commonly established through an industrial connection (NCRVE, 1992a). This connection with a specific industry or corporation is similar to the Japanese connection between high schools and individual corporations. It is believed that a substantial number of students will perform better in such a program than in traditional college-prep programs and that such schools will be more relevant to the needs of our economy.

Waiting until high school to address the education-work needs of youth, however, may prove to be a costly mistake. Lacey (1988) and the Carnegie Council on Adolescent Development (1989) build a strong case for providing new school structures and supportive services as core program components for students in the middle grades. Without an early focus on such elements as counseling and health services to assist youth in overcoming difficulties, and without innovative delivery approaches such as case management, large numbers of our young people will not be able to become self-sufficient (Nightingale et al., 1991).

Bostingl (1992) posits that our schools no longer provide an opportunity for students to perform high-quality work. The primary issue is how to rethink the schooling process so that young people have greater opportunities to develop the self-direction and creative decision-making skills that are necessary for success in today's global economy. Finn (1992) argues that the chance to reform our schools may be squandered unless three promising educational reform ideas are implemented: national school standards; exams keyed to those standards; and the use of exam results for college admission and employee selection.

The general consensus is that two problems are motivating the current restructuring movement--the educational system's poor performance and the changing nature of work and workers (McDonnell, 1989). How well restructuring transforms American education, improves student learning, and eases the school-to-work transition will depend in large measure on the sustained attention of parents, employers, trade unions, educators, churches, youth-serving agencies, community leaders, and local, state, and national authorities (William T. Grant Commission on Work, Family and Citizenship, 1988).

C. Workforce Readiness

With our nation's economic competitiveness sagging and our productivity levels not keeping pace with our international competitors, employers and policy makers have called for changes and improvements in how our schools prepare students (PEI Quarterly, 1991). In multiple surveys, employers point to inadequacies in academic skills and work readiness among workers, including the lack of integrity and of willingness to assume responsibility and work cooperatively. They also point to the increasing need for workers to be lifelong learners--a need generated by the increasing speed with which skills become obsolete and by the frequent changes in jobs that are typically made by workers during their lifetimes (one in five workers leave their jobs once every five years and younger workers even more often). According to the Committee for Economic Development, "Employers in both large and small businesses decry the lack of preparation for work among the nation's high school graduates. Too many students lack reading, writing, and appropriate behavior on the job. Nor have they learned how to learn, how to solve problems, make decisions, or set priorities" (quoted in Carlson, 1990). This view of young workers contributes to their poor prospects in the labor market as employers seek to hire older, more experienced workers, even for entry-level positions.

Yet students have correctly ascertained that there is little if any relationship between how well they do in school and how likely they are to get a high-skill, high-pay job, or even a job that pays good students more than their counterparts who do less well in school. Employers rarely bother to check the academic credentials of young job applicants, nor does the U.S. have an externally graded competency assessment system keyed to the secondary school curriculum, as do most other industrialized nations (Bishop, 1992). The U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) recently made a start on developing such a system by identifying the five competencies that effective workers can productively use and the three-part foundation of skills and personal qualities that competence requires (U.S. DOL, 1991).

Other approaches to providing information on the skills employers need include the Employment Readiness Profile proposed by Barton (1989b) and the employability skills portfolio being piloted in the State of Michigan (Stemmer et al., 1992). All of these approaches are aimed at providing both students and employers with a set of useful, practical indicators of linkages between student competencies and achievements and their likely performance as workers in a changing economy.

D. Articulation between Academic and Vocational Skills

For years, vocational education has been regarded as the traditional "dumping ground" for those students who were identified as not being suited to a curriculum of academic, college-oriented courses. According to Douglas (1992), the long history of competition and distrust between the academic and vocational sectors of schools succeeded only in embittering teachers and harming students. Today, the emphasis is increasingly being placed on integrating academic (theoretical) disciplines with more rigorous vocational (hands-on) courses for all students, but particularly for the large number of non-college-bound students. In the best of these programs, traditional academic and vocational offerings are complementary, with work activities used to help students learn English, math, and science, for example, while the classroom experience builds on and reinforces on-the-job learning.

A variety of innovative efforts are aimed at achieving such an integration between academic and vocational skills, including tech prep, cooperative education, academies, occupationally focused schools, and occupational clusters within schools. The 2+2 tech prep/associate degree program is currently being implemented in a number of states (Hull and Parnell, 1991). Tech prep links vocational education programs offered at the secondary and postsecondary levels, covering the last two years of high school and the first two years of postsecondary education. The four-year program combines a common core of learning and technical education, built on a foundation of basic proficiency in math, science, communications, and technology, all in an applied setting and subject to tests of excellence. The first phase of the program stresses career counseling and academic work and moves toward a more technical concentration at the postsecondary level. The student who completes the program earns a certificate or associate degree in a technical field. First introduced in Indiana in 1987, currently approximately 700 tech prep programs in 47 states allow students to link their high school studies with studies in both community and four-year colleges (Education Writers Association, 1992).

Kerka (1989) examines the findings from cooperative education as a model for school-work integration and finds that although it appears successful for students in the fields of engineering, business, and health, cooperative education remains a marginal program, lacking the scope, funding, and impact it needs to serve as a vehicle for workplace transformation. Grubb (1992) looks at three approaches that attempt to reshape both the academic and vocational components of the high school: academies, occupationally focused schools, and occupational clusters. Academies usually operate as schools-within-schools, existing in many occupational areas, and maintaining close relationships with businesses related to the core occupational area. Occupationally focused schools are usually magnet or focus schools with clear missions, separate organization, and social contracts that indicate the responsibilities of teachers, students, and parents. Every student in an occupational cluster chooses among clusters within a school rather than among schools. In each case, the traditional division between academic and vocational subjects has been bridged.

The general consensus seems to be that vocational education in this country is at a crossroads. Major restructuring is necessary to meet the future economic, social, and technological needs of the U.S., including a new vision of vocational education as an integrated and interrelated part of the overall education program for **all** students (Daggett, 1990). Achieving this goal will not be easy, given the years of historical distance between academic and vocational educators. Based on current information, however, the momentum seems to be growing for closer integration of academic and vocational skills for the benefit of all students.

E. Contextual Education

Current calls for contextual education are a reaction to the passing of the factory age as the dominant form of work organization, and the recognition that the mind/hand split needed on assembly lines is no longer useful in new workplaces. The emergence of these workplaces (albeit in a minority of American companies), the declining competitiveness of the American economy, and the complaints of employers about the poor preparation of many youth for work have fueled the search for new and better ways to educate young people. A further stimulus is the concern that young people lack motivation either to complete high school or to put forth effort while in school, with the absence of a school-to-work transition system adding to the students' perception that school is irrelevant to employment.

Recent reports of such groups as SCANS and the Commission on the Skills of the American Workforce, as well as the 1990 Amendments to the Carl Perkins Vocational Education Act, call for "contextualizing" education as the solution to some of the problems described above. However, what contextual education means and how this is to be accomplished remains to be worked out in districts and schools around the country. Many approaches to integration have already emerged, ranging from simply adding some vocational content to academic classes or vice versa, to organizing entire high schools around occupational clusters in which all teachers collaborate to develop a curriculum that prepares students for a wide range of careers. The following descriptions are of the major approaches to contextual education which are included in this bibliography.

Functional Context Literacy: Based largely on the research of cognitive psychologist Thomas Sticht and the literacy and reading research of Larry Mikulecky, the functional context approach focuses on understanding the vastly different forms that learning takes in classrooms and in workplaces, and on bringing workplace materials and literacy tasks into the classroom.

Mikulecky emphasizes that students will perform better in workplaces if the types of reading materials used in workplaces are also used in the classroom (Mikulecky and Drew, 1988). Sticht emphasizes that because people always bring what they already know to the learning process--learning should be "contextualized" to build on their experiences (Sticht and Mikulecky, 1984). Both Sticht and Mikulecky base curriculum on literacy and problem-solving in specific jobs as they are currently practiced and as they are defined by employers and employees.

Workplace and Community Ethnography on Literacy: This research has revealed complex literacy practices that are not taught in school and that do not translate into academic performance, yet serve the community and workers well (Lave, 1986; Scribner and Sachs, 1991). Studies by Shirley Brice Heath determining local literacy practices (the use of language, reading and writing in the community, and the differences between school and community literacy practices) were used in conjunction with local teachers to build on the literacy practices of the children and their communities. Elliot Wigginton's Foxfire classrooms utilize a similar approach, stressing a student-centered pedagogy that turns the planning and the execution of projects over to the students, thus preparing them for the higher level literacy, thinking, and social skills required in workplaces of the future.

Defining and Teaching Generic or Thinking Skills: Cognitive psychologists have argued that what schools fail to teach and what is most required in high performance workplaces are thinking skills--primarily metacognitive skills, or the ability to regulate one's own thinking. They have argued that teaching thinking skills should be the basis of the contextualized curriculum and that there is sufficient evidence from research to claim that thinking skills can be transferred from one setting to another if certain conditions are present--mainly a person's ability to recognize the similarity of situations (Adelman, 1989). One approach to teaching thinking skills is modeled on the components of traditional apprenticeship, where teachers model thinking skills by articulating how they think about various cognitive tasks (Berryman, 1989 and 1991). Gradually students are given more and more independence in executing similar tasks, until finally the entire task is turned over to them.

Motivation Theory: Most researchers acknowledge that one of the reasons for contextualizing education is to motivate students. Students form mental pictures of their futures from their knowledge and act accordingly. If employment is not part of that picture, or if the classroom seems unlikely to provide them with what they need to attain a job, then they are unlikely to have the motivation to participate actively in learning, or even to stay in school (Stasz, et al., 1990). Some researchers see the main purpose and benefit of contextualizing education as helping students who might otherwise be unmotivated to find reasons for learning. Classwork is linked to employment, and students can feel proud of the real products that they create.

Critical Pedagogy and Contextual Education: Another basis for contextual education is the preparation of students to participate in a democratic society. Within the literacy field, critical pedagogy draws on the work of Paulo Freire in Brazil, who taught literacy through scenarios--often drawings--of local conditions which revealed oppressive conditions in the lives of poor people (Freire, 1970). In learning the words to describe these situations, the people learned not only language skills, but how to read and therefore change the world. Glynda Hull demonstrates how the approach might be applied in a traditional vocational classroom in her ethnographic study of a vocational curriculum in a community college that prepared students for entry-level jobs in banking (Hull, 1991).

A Definition of Contextual Education

Is it possible to provide a definition of contextualized education from these varied theoretical roots and practices? There are elements that do cut across them, but there are also important differences which have implications for the missions of education, curriculum content, and pedagogy. The similarities might be summarized as follows: an agreement that people do not learn best through the present approach to curriculum and teaching characterized by the following: emphasis on decontextualized subject matter; teachers communicating knowledge to students through lectures, workbooks and review of texts; competition rather than cooperation among students; assumption that students must master simple subject matter before moving to more difficult topics; and the absence of tools in the classroom that facilitate work and problem-solving. Rather, the content of the curriculum as well as pedagogy should be changed to contextualize education, including:

- Simulating real work in the classroom by:
  - bringing in literacy materials from workplaces and other contexts to familiarize students with their use and form; and
  - structuring learning into projects that use complex thinking, technical, social, and literacy skills as they are used in workplaces.
- Training teachers to:
  - use "apprenticeship" approaches to teaching (by modeling, supporting and turning over tasks/projects to students);
  - build on what students already know;
  - encourage collaboration among students; and
  - develop assessments that document learning involved in the execution of complex tasks.
- Developing a curriculum that helps students achieve learning outcomes, such as those outlined in the SCANS report, rather than master traditional disciplines.

The degree of school reorganization necessitated by the different practices varies tremendously. Depending on how contextual education is defined, it can imply a total restructuring of schools and a rethinking of education or a minor tinkering with the curriculum. It is likely that in the near future all of the various approaches described above will be tried, and that all will call themselves "contextual education."

F. International Approaches to the School-to-Work Transition

The United States is not alone in its concern regarding the increasingly lengthy process that the transition from school to work has become. Many European countries are examining the "education-employment interface" and the problems faced by youth as a result of external economic forces (Reubens, 1988). One European educator, after observing both the American and European approaches to the transition, concluded that the U.S. and European countries have much to learn from each other and share a common need for better structures to link education, training, and businesses as well as new ways to articulate academic and vocational skills (Meijer, 1991).

The general consensus in the U.S., however, is that the European Community and Japan are far ahead of us in preparing their young people for the workplace and in helping them make the transition from school to work. They are credited in particular with providing better educational and employment opportunities for their disadvantaged youth. Public high schools in Japan, for example, enjoy an interlocking relationship with large private corporations and are much more involved in allocating students into the workforce than American high schools. In the Japanese system, students compete for jobs based on their grades, with their teachers making the initial selection, according to mutually agreed-upon standards (Pettersen, 1992; Rosenbaum, 1989). Such a system particularly helps students in the bottom half of their class, who are unlikely to enter postsecondary education.

The German dual apprenticeship system has long been proffered as a model for the United States, yet even its supporters caution that, for a variety of reasons, it is unlikely that an American version either would or should have great fidelity to the German model (Osterman, 1991). Adapting a form of the German apprenticeship system would provide the U.S. with a broader, more generic occupational training than traditional apprenticeship, combined with academic learning for all high school students. According to Hamilton (1987), the U.S. version would rely on supervised learning experiences in the workplace.

Another lesson provided by Germany, and more recently England, is the effort to maintain quality occupational training by testing and certification to meet national standards. This system is in contrast to the U.S., where certificates often certify only course completion and not necessarily the attainment of specific skill levels (U.S. GAO, 1990a). England and Australia's experiences in restructuring their youth education and training systems may offer models that are more instructive than Germany's for the United States. The British set up a system of employer-based training supported by employment subsidies, while the Australians focused on diversifying the upper secondary school curriculum, emphasizing improved teaching and assessment strategies without weakening the academic quality of the courses.

Of the two approaches, the British Youth Training Scheme was deemed unsuccessful, with little impact on the school curriculum and little coordination of credentials earned among employers and little articulation with the formal education system. The Australian effort, on the other hand, effected changes in the structure of basic education and increased high school graduation rates. It had the added benefit of generating new patterns of policy coordination among education, employment, and social security agencies and could serve as a model for U.S. state governments (Council of Chief State School Officers, 1991b; Vickers, 1991).

G. Apprenticeship in the United States

During the 1970s, apprenticeship programs for the trades were established in high schools in eight demonstration sites around the country--currently involving about 1,500 students. Upon completion of high school, these students become registered apprentices. The programs are considered successful; however, their numbers, like the numbers involved in trade apprenticeships nationally (only 300,000), are very limited and are concentrated in the building trades.

Apprenticeships have now reemerged as a means of improving education, particularly, but not exclusively, for those students who do not go on to postsecondary education. At its simplest, the new American-style youth apprenticeship is a systematic mix of academic instruction in secondary and post-secondary schools with employment-based training of students at a level of quality sufficient to certify their ability to perform entry-level tasks in skilled occupations capably and professionally (Nothdurft, 1991).

The U.S. Department of Labor recently proposed a two-tiered strategy for raising the skill level of the nation's workforce by strengthening and preserving the traditional apprenticeship system while encouraging the expansion of structured work-based learning which incorporates the successful features of apprenticeship (U.S. DOL, 1989c). Through its Apprenticeship 2000 initiative, the Department of Labor is currently funding a series of school-to-work demonstration projects designed to help change the way students learn basic workplace skills by applying the principles behind the German system, particularly the use of workplaces as learning environments and the meaningful interrelation of learning and work (Hamilton and Hamilton, 1992). Each project involves work-based learning strategies that combine work and classroom learning to better prepare students for high-skill careers. In an effort to address the outdated blue-collar image traditionally associated with the term "apprenticeship," the National Alliance of Business has developed a training model which comprises the elements of apprenticeship but goes by the new term of "job performance learning," thereby hoping to attract businesses to utilize these programs to ensure a highly-skilled workforce (Berry, 1991).

Other youth apprenticeship and work-based learning programs have been established in communities across the country, including statewide efforts such as those in Michigan (Michigan Council on Vocational Education, 1990). The majority of these programs provide paid work experiences for students that structure learning into the work experience and use curriculum materials and instructional strategies that build on the students' work experiences. The essential elements that comprise successful youth apprenticeships have been delineated by Jobs for the Future (1991), as has the issue of the costs of such programs and approaches to covering these costs (Roditi, 1991).

H. Youth Work Experience in Naturally Occurring Jobs

Work experience for students takes two forms: school-sponsored education-work programs and part-time work experience obtained by students on their own (in naturally occurring jobs) with no school involvement. The review thus far has addressed the former - structured student work experiences that involve direct and indirect linkages or formal relationships between the school and the workplace. The discussions under contextual education, international approaches to the transition, and apprenticeships all focused on establishing effective systemic links between schools and employers. It is well-known, however, and in some circles is a cause for concern, that most young people work in naturally occurring jobs that they find on their own while in high school (56 percent in 11th grade and 66 percent in 12th grade) (Charner and Fraser, 1987).

Many continue in these jobs after high school, generally in retail, food service, clerical, and unskilled manual work. Studies of youth employment suggest that while young people gain some skills from the jobs they hold while in high school and after graduation, these jobs are generally not tied to academic learning or to school programs, nor are they are linked to any career path. Despite the implication that there ought to be some way to more closely tie these work experiences in with their education, no one - not the schools, parents, or employers - is responsible for the massive movement of high school students into part-time employment which they arrange for themselves. As a result, many of these working students lack a sense of career direction and see work as successive short-term jobs, not in terms of careers (Charner and Fraser, 1987). The jobs that might have enormous potential for education-work experience, with advantages to both students and employers, are largely being wasted.

Stern and Nakata (1989) uncovered considerable variation in the qualitative jobs held by working students. Significantly, the degree to which the job gave the student the opportunity to use and develop valuable skills was positively associated with job market success for the three years after high school graduation. They also found that students with more complex jobs may develop a greater capacity for learning on the job, a skill that employers stress as critical in an ever-changing work environment. Whether this was due to the capacity of the particular student worker or the nature of the job, however, was not clear, and the implications for policy could not be ascertained. Barton (1989a) and Hotchkiss (1986) found no cause for concern regarding possible negative effects of working during high school.

Mortimer and Yamoor (1987) felt that most part-time jobs held by young people are "far from optimal" for adolescent development. Other studies have found a range of negative correlates of working long hours during the school year, including diminished attachment to and lowered performance in school, higher levels of drug and alcohol use, delinquency, and weakened parental authority (Steinberg and Dornbusch, 1991; Mortimer and Finch, 1986). Yasuda (1990) found a strong negative relationship between the number of hours worked during school and self-reported grades.

Until more complete, longitudinal data are available, the debate over the effects of young people working while in school will continue. The literature points out that whatever the effects, educators and employers must create mechanisms for jointly promoting the long-term economic benefits of education while encouraging productive, developmentally appropriate work by young people.

I. School-Business Collaboration and Partnerships

One highly publicized outgrowth of school reform efforts has been the proliferation of joint efforts between businesses and educational institutions. The National Alliance of Business and National Association of Partners in Education are two of the groups that are trying to track the hundreds--perhaps thousands--of collaborative ventures that are in place across the U.S. They range from relatively simple individual projects (e.g. donation of equipment) through the popular Adopt-A-School programs, to highly complex, multi-agency communitywide collaboratives like the Boston Compact, developed in 1975 and frequently referred to as the "mother" of all community collaboratives.

Using the Boston Compact as an illustrative case study, Grobe et al. (1990) define the nature and benefits of partnerships and lay out six categories of partnerships: special services, the classroom, teacher training and development, management, systemic educational improvement, and policy. Similarly, the National Alliance of Business (1989) identifies five components of educational restructuring in which business has a collaborative role, as well as the five functional areas in which business' knowledge and experience can assist educators:

management analysis and improvement; advocacy; staff development; research and development; and the application of new technology. Bailey (1989) points to Chicago's Leadership for Quality Education as an example of a new breed of business partnerships in which companies combine philanthropy with hardball politics to seek school reform.

Although all of these types of partnerships are growing in number and sophistication, it is unclear how effective they are in the short run and what the long-term effects are likely to be, even with such well-known projects as the Boston Compact. CSR and Meridian Corporation (1991) provide specific examples of activities that develop and strengthen local partnerships and discuss the lessons that have been learned thus far about effective strategies for linking work and learning. Lacey and Kingsley (1988) offer guidelines for working partnerships based on the experiences of 21 Partnership Projects sponsored by the Edna McConnell Clark Foundation, which focus on increasing the employability of economically disadvantaged young people before they drop out of school. Inger (1990) reports on the rationale for a community-based strategic planning effort for the work-related education system in the Pittsburgh metropolitan area, summarizes the lessons learned, and recommends actions to improve the functioning of such a system, including regional leadership, performance indicators, testing and counseling, and collaborative program development.

On the negative side, Miron and Wimpelberg (1989) reach the pessimistic conclusion that most of the investments made in the partnerships that they studied may merely compensate for meager tax bases in urban systems and therefore are not likely to lead to real innovation or reform in those systems that need the most change. Despite this bleak assessment, the literature points very specifically to business' interest in becoming more involved in education. As Doyle (1989) forthrightly states in a Business Week supplement devoted to business-education partnerships, business is interested today because long-term profitability depends on education as the foundation of America's ability to compete in a changing world economy.

III. CONCLUSION

The burgeoning literature on the issues and concerns relating to the school-to-work transition is an encouraging sign that serious attention is being paid to the need for development and coordination of strategies to help our young people find their way through the current maze of disconnected, uncoordinated transition services. Policymakers on the national, state, and local levels are recognizing that, while we generally do a good job of helping our young people who complete their postsecondary education or training directly after high school, we have been doing a poor job of educating and preparing those who do not. The unemployment rate for these young people remains discouragingly high, deeply rooted in converging social and economic trends noted in many of the annotations that follow, including reduced family support, slower economic growth, changes in the composition and organization of work, and a marketplace where global forces dictate direction.

The evidence increasingly supports the consensus that the United States has not kept pace with overseas competition at least in part because of our past failure to develop young people's capacities and help them make the critical transition from education to employment. The good news is that schools and employers, together with government and community agencies, are beginning to come together to develop effective school-to-work transition strategies. The documents contained in this annotated bibliography will hopefully serve as a sufficient base of information on the issues and topics related to school reform for youth transition to provide guidance and direction on the nature, quality, and impact of youth transition as a part of ongoing school reform.

APPENDIX A

SCHOOL REFORM AND YOUTH TRANSITION

ANNOTATIONS

Academy for Educational Development. (1989). Partnerships for learning: School completion and employment preparation in the high school academies. New York: Author.

This report provides an overview of high school academies and how they function. The Edna McConnell Clark Foundation supported the development of high school academies in several cities based on the belief that they are effective models for helping students make a successful transition from school to postsecondary education and/or work. They also appear to help prevent dropouts and prepare the at-risk student for future employment. The following features define the model and ensure success:

1. Strict adherence to the academy model, including block-rostering, team teaching, common preparation for teachers, and mentor and work experience components.
2. A defined student selection process that results in the enrollment of potentially successful at-risk youth, and that avoids labelling and enhances self-esteem.
3. An integrated academic-technical curriculum emphasizing broad areas of competency and teaching students transferable skills.
4. Strong private sector support including involvement in a governing body so that decision-making is conducted jointly by educators and industry representatives; participation by industry in the development and revision of the technical curriculum; and support for certain other features of the program (mentors, jobs, field trips, speakers).
5. A strong career planning component emphasizing student employability and job readiness skills.
6. A full range of student support services including counseling, tutoring, and a pattern of motivational activities and awards.
7. A high degree of commitment at the district level so that academy teachers have sufficient time to plan and adequate equipment and supplies.
8. Identifiable academy space with a number of homerooms and labs dedicated solely to academy classes.

Adelman, N. (1989). The CASE for integrating academic and vocational education. Washington, DC: Policy Studies Associates.

This report, commissioned by the National Assessment of Vocational Education, is a study of five innovative approaches to the integration of vocational and academic programs. The five sites included: the Oakland Health Academy, Oakland Technical High School, California; Montgomery Country Joint Vocational School, Clayton, Ohio; Dauphin County Technical School, Harrisburg, Pennsylvania; the High Technology Magnet Program, Schenley High School Teacher Center, Pittsburgh, Pennsylvania; and the New York State Revised Occupational

Education Curriculum which is mandated in the 7th and 8th grades and in the 9th grade for students majoring in occupational education.

The programs and the state initiatives were chosen because they did much more than incorporate "basic skills" into the vocational curriculum--they represented innovative attempts to both integrate curricula in both areas and to incorporate the higher order thinking skills identified as critical by employers and recent reports on the preparation of young people for the workplace.

The researchers concluded with lessons in the areas of curriculum, teachers and instruction, support, evaluation, traditional versus "new generation" vocational education, and time. The authors conclude that vocational/academic integration is a highly promising strategy for addressing the higher order thinking skills that employers say they want and that reports indicate workplaces of the future will require. They also feel that it is an approach that will help to motivate students who are alienated from school because they do not perceive its relevance to the future. Thus it is particularly appropriate for the forgotten half who are not college bound.

The American Society for Training and Development. (1988). Workplace basics: The skills employers want. Washington, DC: United States Department of Labor, Employment and Training Administration.

The upskilling of work in America is driven by technical changes, innovation, and a sense of heightened competition. A new kind of worker is essential--one who will be expected to have a broad set of skills that were previously required only of management. How America responds to economic and technical change depends on how the country integrates learning within its employer institutions.

This report posits that the skills employers want are based on the foundation of knowing how to learn, and include competencies in reading, writing, and arithmetic; oral communication and listening; adaptability in creative thinking and problem solving; personal management skills of self-esteem, goal-setting, motivation, and personal and career development; group effectiveness in interpersonal negotiations and teamwork; and organizational effectiveness and leadership.

Deficiencies in many of these basic workplace skills are barriers to entry-level employees, experienced employees, and dislocated workers attempting to adapt to economic and technological change within employer institutions.

Bailey, A.L. (1989, December 12). Corporations support a "revolution" in Chicago. The Chronicle of Philanthropy, pp.4-7.

The author of this article points to Chicago's Leadership for Quality Education as a good example of a new breed of business partnerships in which companies combine philanthropy with hardball politics to seek school reform. Several trends are emerging, including the following:

- More and more corporations are coordinating their efforts nationally as well as locally. Members of the Business Roundtable, which represents chief executives of the nation's 200 largest companies, made a 10-year commitment of their time and their companies' resources to work with state governors for education reform.

127 companies have signed on and each company is assigned a state in which to focus its efforts.

- Companies are beginning to require strong evidence of progress in return for their grants. For example, corporations nearly pulled out of the Boston Compact, a $250-million corporate effort to benefit the city's schools. Businesses were outraged by outside studies showing that Boston's schools had failed to deliver on their promises to raise achievement and attendance levels in return for the corporate support.
- Businesses are moving beyond simple partnerships, such as "Adopt-A-School" programs, to efforts to change entire school systems. For example, the California Roundtable, a group of the state's largest businesses, is backing a legislative measure that would offer preschool education to all children, make drastic curriculum revisions, etc.
- Businesses are forming coalitions to improve schools in communities where they operate. Southwestern Bell has given the Education Commission of the States $1 million for a project that will form business coalitions in six states.
- Some corporate grant makers are now saying that arts, health, and other groups are more likely to win grants if their proposals are linked to school reform.

Barton, P.E. (1989a, March). Earning and learning: The academic achievement of high school juniors with jobs (Report No. 17-WL-01). Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress.

The results of the National Assessment of Educational Progress and other major research efforts indicate that there is no cause for alarm about the effect of student work on academic achievement. However, as school reform creates more demanding schools, student work could become a more prominent issue.

In considering individual circumstances, a number of factors should be taken into account, including student capability, the demands of school, the nature of the work, and links between school and work. Where work assignment is connected to schooling objectives, work can complement schooling objectives rather than competing with them. Other important aspects of student work to be considered include how it affects the transition from school to the labor force and the general role it plays in development. There are many possibilities for schools, employers, and local employers to work together to improve student learning and students' transition to adulthood.

Barton, P.E. (1989b, October 26). Skills employers need: Time to measure them?

This report concerns what the author believes is a growing consensus on the skills employers need in the workplace. The consensus could then be used as a foundation on which to develop a profile of skills, and an assessment which would supplement current assessments of achievement in regular academic subjects. This Employment Readiness Profile would be administered to a national sample of students and school dropouts. Its development and design would be guided by a committee of employer representatives, supplemented with educators and labor market experts. Periodic surveys of employers' needs would update the information on necessary skills. The results of such an assessment would describe proficiencies at the subgroup level, not at the individual level. The dialogue required for the development and construction of the Profile will be constructive in developing agreement on measures for improving the preparation of young people, and in defining the roles of schools and employers in doing so.

In the United States, to a greater degree than in most developed countries, there has been a failure to mesh the schooling and working periods of life, leaving a gap that those who do not go on to college often find difficult to close. Joining together in the development of a measure of employment readiness, educators and employers could take a large step toward closing that gap as they simultaneously create a workforce with more of the skills needed to meet the tough challenges of world competition.

Barton, P.E. & Kirsch, I.S. (1990, July). Policy perspectives--Workplace competencies: The need to improve literacy and employment readiness. Washington, D.C.: United States Department of Education, Office of Educational Research and Improvement, Information Services.

The purpose of this report is to provide decisionmakers in the area of work readiness with the most accurate information available. The authors consider various issues including young adult literacy, the literacy of high school graduates, occupations and literacy, work force readiness, and literacy in the future workplace. Recommendations and policy implications include:

1. Addressing inadequate literacy, emphasizing the distinctions between the common approach of "counting the illiterates" and the more sophisticated strategy of profiling the population on literacy proficiency scales.
2. Expanding measures of proficiency in literacy tasks beyond classroom reading. Workplace competencies can be increased with measurement instruments that identify the level of literacy attainment and that are linked with instruction geared to raising workers and potential workers from where they are now.
3. Addressing the problem of illiteracy now, since the problem is already on us and will only get worse.
4. Improving literacy skills in the schools. Using the new literacy scales, we need to assess literacy beginning in middle school if we are to do better in aiding its development. This report urges the development of more instructional approaches that involve or simulate real experience.
5. Improving measures and tools for evaluation through:
   - an employment readiness profile;
   - tracking literacy with comparable measures over time;
   - developing literacy tasks from workplace materials; and
   - analysis of occupations to determine the literacy levels that different occupations require.

Benson, C.S. (1991, October). Current state of occupational and technical training: The need for integration and high quality programs (Working Paper). Berkeley, CA: National Center for Research in Vocational Education.

This paper addresses approaches to the reform of American secondary schools that build upon pedagogical strengths of vocational education while at the same time seeking to transform both academic and vocational education into a new and much more powerful synthesis of instructional practice.

The author discusses the contemporary scene and main assumptions of both current and alternative secondary school reform. The four pillars of current school reform are cited as being longer school days, longer school years, more rigorous standards for high school graduation, and heightened requirements for entrance to college. "High schools with character" (HSC) provide an alternative approach to educational reform in secondary schools. The four pillars of high schools with character are integration of academic and vocational studies; cooperative learning on the part of students; collegial work on the part of teachers; and a special school identity, commonly established through an industrial connection.

The author suggests that it would be worthwhile to establish and evaluate a national sample of high schools with character. If it turned out that schools that fully implemented the concept tended to show greater student achievement than conventional high schools, this fact would be significant for at least three reasons. First, HSC would promote equity in terms of access of students to learning. Second, HSC are more cost-effective. For a modest increase in expenditures, society receives reduced drop-outs, more rigorous courses, and higher test scores. Finally, HSC are better able to meet the needs of the economy.

The author concludes with two proposals. First, America should establish a "national skills strategy," under which we reach agreement on national economic goals of the highest priority and determine which kinds of work skills are essential to meet these goals. Second, the skills strategy should be complemented by a "training strategy" which would attempt to evaluate alternative processes for developing the skills identified for priority treatment in the given planning periods.

Berry, S.L. (1991, August). Apprenticeships: A medieval idea wins a 20th century edge. Management Review, pp. 41-44.

To meet the new demands and increased competition of the current business arena, many companies are trying the age-old method of apprenticeships. As defined by the Department of Labor, apprenticeship is structured, supervised training in occupations that require a wide and diverse range of skills and knowledge, as well as maturity and independence of judgment. The Department's 1987 introduction of Apprenticeship 2000 encourages American businesses to utilize apprenticeships or work-based learning programs to ensure a highly-skilled workforce. Companies such as Motorola, Eastman Kodak, Boeing, Dresser-Rand Corp., and LTV Steel are all examples of American businesses renewed appreciation of apprenticeship.

The present national apprenticeship system is hobbled by several factors, including federal regulations and an outdated blue-collar image. To offset these factors, the National Alliance of Business has developed a training model which enlists components of apprenticeship, but carrying the new term of "job performance learning." This employs a combination of classroom instruction and structured on-the-job training, and stresses the need to allow individuals to advance through the program on the basis of understanding job-related concepts and performing well on the job.

Berryman, S.E. (1991, September). Designing effective learning environments: Cognitive apprenticeship models. IEE Brief (No. 1).

This Brief reviews why many school learning situations are ineffective and introduces cognitive apprenticeship models that suggest what effective learning situations might look like. The author first proves five common assumptions about learning to be false, and then provides a study of efforts to design effective learning environments, including the work of 19th and early 20th century educators, analyses of apprenticeship learning and of the rapid learning of young children, and cognitive research. These precedents add up to a solid foundation for designing effective learning environments. A proposed model of "cognitive apprenticeship" by Collins, Brown, and Newman ignores the usual distinctions between academic and vocational education, and has four building blocks: content, methods, sequence, and sociology. Together, these elements define an effective learning situation, with very different classrooms and roles for teachers and students.

The paper next focuses on how cognitive apprenticeship ideas fit current policies and programs such as integrating academic and vocational education, work-based apprenticeship, technical preparation and 2+2 programs, and cooperative education. In the final analysis, we do not currently know how effective cognitive apprenticeship is, especially in routine as opposed to hothouse situations. The ideas are unusually well-grounded, but there are very few learning situations that reflect cognitive apprenticeship principles. Extending the ones that exist and creating new ones requires dealing with regulatory, institutional, curricular, pedagogic, assessment, and professional training issues. The model itself will change as experience is gained in the real world of teaching and learning.

Berryman, S.E. (1989, November). Portents of revolution: The cognitive sciences and workplace literacy. Presentation for the National Workplace Literacy Conference, Rochester, NY.

The premise of this paper is that America needs to completely reframe the education and training systems and workplaces as learning environments; in essence, to revolutionize economic and educational institutions. The key is to utilize the powerful research base of cognitive sciences. A renewed emphasis on learning through the modern form of apprenticeship is called for. Analysis of competence in the cognitive sciences have made possible the formal modeling and simulation of complex cognitive performance, leading to a number of successful education and training programs that constitute modern apprenticeships under the tutelage and mentorship of experts. These programs have several characteristics in common:

1. They do not just teach knowledge and procedures; they also focus on the conditions of application of the knowledge and skills being learned.
2. They weave together specific declarative ("know what") and procedural ("know how") knowledge with the development of general basic skills and problem-solving strategies.
3. Instead of constructing curriculum top-down by encoding the knowledge of experts in suitably simplified materials, instruction takes into account the learner's original ideas, stages discrepant or confirming experiences to stimulate questions, and

encourages the generation of a range of responses with the opportunity to apply these in various situations.

4. Effective programs recognize the importance of situated learning and learning in context. Important components include the use of physical environment and the tools it provides to represent problems and develop solutions, the cooperative construction of knowledge among groups of workers doing a common task or exchanging information about related tasks, and the importance of becoming part of the community that shares a particular domain of knowledge, set of skills, and ways of representing and resolving problems.

Berryman, S.E. & Bailey, T.R. (1992). The double helix of education and the economy. New York: The Institute on Education and the Economy.

This book highlights the complementarity between the two strands of the changed workplace and what is now known about effective learning. The U.S. workplace is changing, and these changes are gradually rendering education as traditionally delivered more and more unconnected to what its graduates need to know and how they need to perform at work. Strengthening the educational system so that it conforms to the ways that people learn best will also directly enhance its ability to prepare students for the transformed workplace. The book posits that our economic and educational institutions face virtually the same challenge: to organize their activities, whether learning or production, to capture the power of the fact that human beings are naturally sense-making, problem-solving, and environmentally interactive. The authors' analysis of the research on schools and the economy leads them to present three fundamental recommendations:

1. Change the mission of K-12 schools to take educational responsibility for the economic futures of all students.
2. Dissolve the dualism that perpetuates the deep division between academic and vocational education.
3. Organize learning around the principles of cognitive apprenticeship.

Bishop, J.H. (1989, February 27). Incentives for learning: Why American high school students compare so poorly to their counterparts overseas (Working Paper #89-09). Ithaca, New York: Cornell University, Center for Advanced Human Resource Studies.

In the United States, most students realize few benefits from studying hard while in school, due to four phenomena:

- The labor market fails to adequately reward effort and achievements in high school.
- Admission to selective colleges is not based on an absolute or external standard of achievement in high school subjects.
- The peer group actively discourages academic effort because studying hard shifts the grading curve up and makes it harder for classmates.
- Parents do not demand higher standards because this will not improve their child's GPA, rank in class, or SAT score, and it would put at risk what is really important--the diploma.

The key to motivation is recognizing and rewarding learning effort and achievement. Learning accomplishments need to be described on an absolute scale and signaled to employers. The following reforms are recommended:

- Improve measures of academic achievement so the labor market will reward effort in high school.
- Reform college admission policies.
- Encourage greater use of improved employment tests.
- Provide school-based rewards for learning.

Bishop, J.H. (1992, March). Why U.S. students need incentives to learn. Educational Leadership 49(6). pp.15-18.

For the past two decades in America, the low level of academic achievement in our secondary schools has spelled disaster for our youth and for our economy. American students' academic decline can be attributed in part to their correct assessment of the lack of connectedness between work and schools. Although greater academic achievement improves wages only slightly, it increases productivity substantially. One reason wages do not reflect productivity is because employers lack good objective information on the academic competencies of young job applicants. One of the saddest consequences of this lack of objective information on young people's academic competencies is that employers with good jobs offering training and job security are unwilling to take the risk of hiring a recent high school graduate. Educational leaders are beginning to realize that if the labor market were to begin rewarding learning in school, high school students would respond by studying harder, and local voters would be willing to pay higher taxes to finance better schools.

We are the only industrialized country in the world that does not have a system providing externally graded competency assessment keyed to the secondary school curriculum. Rather than use rank in class or grades measuring performance relative to others in the classroom as our signal of students' accomplishment, we should define competency by an absolute standard. Different types and levels of competency should be certified. External assessment of accomplishment can help teachers develop mentoring or coaching relationships with their students, and can turn academic coursework into a positive situation where everyone wins.

Bostingl, J.J. (1992, March). The total quality classroom. Educational Leadership, 49(6), pp.66-70.

This article posits that to a great extent, American education has mimicked the military-industrial model of "efficient" work, where the worker is viewed as a cog in the work machine. What is lost in the way we have run our schools and businesses are opportunities for high-quality student work. The imperative for the United States is clear: either we commit now to high performance in the processes and products of our schools and industries, along with the development of intrinsically motivated and highly skilled young people, or we consign more than 70% of our workers to increasingly lower wages and put our heritage truly at risk as the global economy washes over us.

In the schools, students and teachers are the frontline workers. The issue then becomes how to rethink the schooling process so that young people have greater opportunities to develop the self-direction and creative decision-making skills so essential to success in the emerging global economy and American workplace.

The ideas and methods of W. Edwards Deming, who masterminded the Japanese rise to quality production, have been adopted in the U.S. in the last decade. "Total quality management" has become the operational byword for many companies, as they redefine their reasons for existence around the requirement to service the customer first. Companies are beginning to realize that products of consistently high quality are the natural result of consistently high-quality processes. The most successful organizations carefully build quality of process and product into their long-term strategic planning as well as their day-to-day operations.

Total quality management provides several insightful implications for education as well. Families, school administrators, and teachers must rethink their roles and the system must be adjusted. For instance, teachers should use tests as prescriptive and diagnostic tools, rather than as a final "inspection" of the student's learning. As Deming points out, the right time for attention to detail in any production process--including the learning process--is at every step along the way. Ultimately, the purpose of education must be redefined. Education in the new paradigm will be a process that encourages continual progress through the improvement of one's abilities, the expansion of one's interests, and the growth of one's character.

Brandeis University Center for Human Resources. (1989, December). An introduction to basic skills education for at-risk youth: A decision maker's guide to principles and practices. Waltham, MA: Author.

During the past few years, basic skills education has become a vital element in Job Training Partnership Act (JTPA)-sponsored youth employment programs. The goal of this report is to help policy makers, practitioners, and others make informed decisions about the development of new services by providing an introduction to the elements of effective basic skills programs and a framework for thinking about the kinds of basic skills programs that are needed. Part I reviews the research on characteristics of at-risk youth and the needs of employers; Part II introduces the elements of effective basic skills program design; and Part III provides a brief discussion of several key policy and performance management issues that must be addressed to establish a policy environment that supports and encourages basic skills programming.

To put effective basic skills principles into practice, local decision makers need to create a local policy context that supports and encourages the integration of basic skills into youth employment. Key elements of that policy include:

- a commitment to serving those youth most at-risk of chronic unemployment;
- a recognition of the differences among programs and the development of contract standards that reflect those differences;
- the definition of interim and final program outcomes that reflect the initial skill levels of the youth being served while also requiring meaningful progress toward employability; and

- the development of a collaborative policy and program development process that involves providers and employers as well as policy makers in establishing workable performance policies.

The Business Roundtable Ad Hoc Committee on Education. (1988, April). The role of business in education reform: Blueprint for action. NY: The Business Roundtable.

The Committee recommends expanding interest in education through a two-level strategy: by involving the Business Roundtable as a national organization in education public policy mainly on the federal level, and by promoting Roundtable member company activity in school/business programs and member company involvement in public policy issues mainly on the state and local level. The principles guiding action include the following:

- Select a limited number of education programs and do them well.
- Conduct programs that are cost-effective.
- Develop programs with high employee involvement.
- Make a sustained commitment to education programs.
- Support programs that will serve the interests of business and society.

The Committee developed a series of six recommendations for the Business Roundtable and its member companies:

- Initiate no further studies on education.
- Make a sustained commitment to education through a CEO-led effort.
- Influence education at the federal level, including the subject of national curriculum standards.
- Provide guidance and information to member companies on education programs and policies through the CEO-led effort.
- Develop and strengthen school/business partnerships at the state and local level.
- Endorse public policy issues at the state and local levels that encourage a focus on issues such as curriculum standards, teacher competency, and teacher compensation.

Byrne, S.M., Constant, A., & Moore, G. (1992, March). Making transitions from school to work. Educational Leadership, 49(6), pp.23-26.

For most of our young people, the United States has a more or less do-it-yourself system for making the transition from school to work. The absence of an effective system to help non-college-bound young people make a smooth transition from high school to the primary labor market costs us dearly, both socially and economically. As American employers decried their inability to find young workers with the skills critical for success, our foreign competitors discovered the value of investing in their future work force.

Perhaps the greatest breakthrough has been the growing recognition that school reform requires the full commitment of all partners to systematically change the way we approach education in this country. The National Alliance of Business has initiated a school-to-work transition model known as the Quality Connection Consortium, where employers take direct responsibility for a portion of the educational enterprise. Jobs for students provide an incentive for them to stay in school, and are also significant learning experiences, designed to teach skills by embedding them in a curriculum keyed to the requirements of the job.

The American public has yet to accept the idea that government, education, employers, and organized labor should collaborate to develop human resources rather than maintain isolation. Many individual programs address some of the issues, and many are successful within a limited scope. Most, however, are not linked together as part of a comprehensive system of education. Under this new system:

- All students' education is comprehensive. Students attain core educational competencies, gain a first-hand understanding of the world of work, and actively participate in learning activities in both school and work settings.
- All students have focused curriculums from ninth grade on, but are free to move along curriculum options based upon performance and desire.
- Structured on-the-job learning is linked to, but does not substitute for, academic learning.
- All learning is performance-driven and all evaluations are outcome-based.
- Structured on-the-job learning is based on performance analysis of critical competencies along a defined career path.

Carlson, C.G. (1990). Beyond high school: The transition to work. Princeton, NJ: Educational Testing Service.

This issue of the Focus newsletter highlights the various aspects of causes, effects, and programs surrounding school-to-work transition issues. A review of the reports and comments of the experts reveals that while it is important to provide solid academic skills in order to maintain the option of college for all, the nation must also be more realistic in preparing students for the world of work, given the fact that at least half of the nation's high school students will either not attend college or will not complete their B.A. studies. There is a need for:

- funding, as well as a more positive attitude concerning the career goals of non-college- bound students;
- greater concentration on improving systems already established and working, such as vocational education and work-study programs;
- increased guidance for students into courses of study that would enhance their employability;
- more accessible and improved adult education for lifelong learning;
- national recognition of the problem, and national leadership;
- improved and more accessible assessment systems; and
- a close examination of the types of support systems already in place for college-bound students to guide efforts for work-bound students.

Carnegie Council on Adolescent Development. (1989, June). Turning points: Preparing American youth for the 21st century. NY: Carnegie Corporation of New York.

The early adolescent years are crucial in determining the future success or failure of millions of American youth. All sectors of society must be mobilized to build a national consensus to make the transformation of middle school grades a reality.

By age 15, substantial numbers of American youth are at risk of reaching adulthood unable to adequately meet the requirements of the workplace, the commitments of relationships in families and with friends, and the responsibilities of participation in a democratic society. They will seek jobs in an economy that will require virtually all workers to think flexibly and creatively, as only an elite few were required and educated to do in the past.

Recommendations for transforming the middle grade schools include:

- Create small communities for learning where stable, close, mutually respectful relationships with adults and peers are considered fundamental for intellectual development and personal growth.
- Teach a core academic program that results in students who are literate, including in the sciences, and who know how to think critically, lead a healthy life, behave ethically, and assume the responsibilities of citizenship in a pluralistic society. Youth service to promote values for citizenship is an essential part of the core academic program.
- Ensure success for all students through elimination of tracking by achievement level, promotion of cooperative learning, flexibility in arranging instructional time, and provision of adequate resources for teachers (time, space, equipment, and materials).
- Empower teachers and administrators to make decisions about the experiences of middle grade students through: creative control by teachers over the instructional program linked to greater responsibilities for students' performance, governance committees that assist the principal in designing and coordinating school-wide programs, and autonomy and leadership within sub-schools or houses to create environments tailored to enhance the intellectual and emotional development of all youth.
- Staff middle grade schools with teachers who are expert at teaching young adolescents.
- Improve academic performance by fostering the health and fitness of young adolescents.
- Reengage families in the education of young adolescents by giving families meaningful roles in school governance, communicating with families about the school program and student's progress, and offering families opportunities to support the learning process at home and at the school.
- Connect schools with communities, which together share responsibility for each middle grade student's success, by identifying service opportunities in the community, establishing partnerships and collaborations to ensure students' access to health and social services, and using community resources to enrich the instructional program and opportunities for constructive after-school activities.

Charner, I. (1988, Fall). Employability credentials: A key to successful youth transition to work. Journal of Career Development, 15(1), 30-40.

This article describes the concept of a new employability credential for youth. For many youth, the traditional academic record alone does not provide a successful transition into the world of work. Without a second credential that provides a record of developmental experiences and employment-related skills and knowledge, the successful transition to the labor market can be very difficult. This paper examines the essential elements of such a credential and explores the process that should be followed in developing an employability credential. The National Institute for Work and Learning's Career Passport program is discussed as an example of a formal mechanism for assisting youth in developing this new type of employability credential.

Employers place considerable emphasis on credentials. The assumption that a high school diploma can be used to screen for competencies is problematic. First, it leaves much of the translation of what a high school diploma means, in terms of skills, knowledge, and attitudes, with the employers. Second, it fails to differentiate among youth because the diploma does little more than signify that high school has been completed. Finally, it places young people without diplomas at a great disadvantage.

Although a high school diploma may demonstrate a certain level of maturity, motivation, perseverance, and some specific academic skills, it does not provide an adequate picture of the employability or marketable skills, knowledge, and competencies that an individual possesses. In order for youth to make successful transitions to work, they need more than their high school diplomas. They need an employability credential that identifies and documents the array of their developmental experiences and translates these into component competencies--a credential that employers will respect and youth will value, and that represents a process that helps youth understand themselves and their marketability and provides them with a sense of self-worth and future direction.

Charner, I. (1990, May 15). The changing nature of school-to-work transition: Issues and implications (Panel presentation at "The Quality Connection"). Washington, D.C.: The National Institute for Work and Learning.

This presentation points to the deteriorating situation of youth moving from school into adult roles and the workplace, and addresses the factors causing this situation. The author focuses on the 40-65% of young people who will eventually make the transition from school to work, but only at a high cost to themselves and society. The presentation addresses issues and implications for the changing nature of school-to-work transition under three broad headings: skills, support systems, and employer roles.

Concerning support systems, the author suggests that a system needs to be developed which would be based primarily in schools and would help students who want to work directly after high school, and points to the youth welfare office of the German education and training system which provides such services. The system needs to be extended for young people after they leave school. Such a system should, at a minimum:

- provide a centralized location for training and employment related activities

- provide information on future employment and career options
- oversee current work experiences of students
- maintain relations with employers in the community
- link work to academic subjects
- provide resume development and interviewing skills
- offer career counseling
- connect students with adults through mentoring and other programs

Charner, I., & Fraser, B.S. (1987). Youth and work: What we know, what we don't know, what we need to know. Washington, DC: The William T. Grant Foundation Commission on Work, Family and Citizenship.

This report identifies what is known about the impacts of teenagers working and offers a series of recommendations for further research, policy, and programmatic activities designed to enhance our understanding of the teenage work experience.

The report first presents a relatively broad and comprehensive picture of the patterns of student participation in work activities for different demographic subgroups of the youth population, and then analyzes reasons for and attitudes toward participation in work activities. Next the authors examine the nature of student work experiences and the roles and responsibilities of youth in their jobs outside of school. Finally, the authors present research recommendations relating to the need for a better and more comprehensive data base on youth and work, and provide a set of policy and program recommendations.

Chion-Kenney, L. (1992, April 6). On the smart track: Schools that blend academics with training for real life. The Washington Post, p. B5.

The Education Writers Association (EWA) released a report on April 2 entitled "Learning Work: Redefining Success in Vocational Education," which describes innovative efforts designed to meet the needs of the "forgotten half" and the "neglected majority." EWA finds that to better bridge the worlds of learning, earning, and adulthood for all students, schools need to have:

- the same high goals and expectations for students headed for work as they do for students striving for four-year college degrees;
- teachers, employers, post-secondary instructors, and others working together to expand the four walls of the classroom to the community at large;
- a community of players working to revamp the rules, roles, and relationships that govern schools, as well as what students are taught, how they learn, and the schedules and "space" they work in;
- collaboration between academic (theoretical) and vocational (hands-on) disciplines, between teachers who have historically prepared students to "think and learn" and those who have historically prepared students to "carry out procedures;" and
- students who see that what they learn is connected to what they do and aspire to be "in real life"--and to what they experience on the job and in other classes throughout their school years.

The tech prep initiative, which allows students to link high school studies with studies in both community and four-year colleges, is gaining momentum. Approximately 700 tech prep programs in 47 states are part of the National Tech Prep Network.

There is still a lack of consensus about the purpose of secondary vocational education, which the Southern Regional Education Board (SREB) believes "is to prepare youth with the ability to continue to learn in either a work or educational setting." The SREB State Vocational Education Consortium aims to raise math, science, and communications achievement levels by integrating academic and vocational studies. Among key findings of its six-year project:

- Students achieve more when more is expected of them, but at least one-half of high-school vocational students say too little is expected of them.
- Courses are far more important in advancing achievement than are credits earned in a given subject.
- Students learn more when their vocational teachers stress academics.
- Students achieve higher math scores when they take higher-level courses and when they are required to use math skills in new and meaningful situations.
- Science scores go up when students enroll in laboratory courses and when studies progress from the concrete (tangible and direct experiences) to the abstract (concept and theory).

Collins, A., Brown, J.S., & Holum, A. (1991, Winter). Cognitive apprenticeship: Making thinking visible. American Educator.

This article offers an approach to teaching thinking skills based on traditional apprenticeship methods. The authors argue that traditional apprenticeship, primarily in the crafts, had four essential components: observing how the master did the various parts of the task; scaffolding, which is the support the master provides in carrying out tasks--hints, suggestions, challenges; fading, which is the process of slowly removing support and giving the apprentice more responsibility; and coaching, which occurs throughout the apprenticeship and is the way in which masters assist apprentices through feedback, challenges, working on weaknesses, etc.

In traditional apprenticeship, observation plays a key role through which the apprentice gains a conceptual model of how to execute the entire task. Since observation is so important and obviously impossible in teaching complex thinking skills, the equivalent in cognitive apprenticeship is to bring "the thinking to the surface." Like traditional apprenticeship, tasks should be situated in contexts that make sense to students. Finally, because cognitive tasks must be transferred from one domain to another, teachers should provide a variety of situations and point out the common aspects so that students can transfer what they know.

The authors present what they describe as three "success" models of cognitive apprenticeship--using Palinscar and Brown's reciprocal reading method; Scardamalia and Bereiter's approach to teaching writing; and Shoenfeld's approach to teaching mathematical problem solving. Each of these innovative approaches incorporates the elements of cognitive apprenticeship which the authors see as essential to develop thinking skills that are transferable to diverse settings. The authors stress that what they have put forth is not appropriate for all students or for mastery of rote knowledge; it is an instructional paradigm that teachers must adapt to their own classrooms.

Congressional Quarterly, Inc. (1992, October 23). Youth apprenticeships: Can they improve the school-to-work transition? CQ Researcher (2)39.

This issue of CQ Researcher addresses the growing movement to create a school-to-work transition system centered around the centuries-old concept of apprenticeship. As early as the 10th grade, students would combine academics with on-the-job training as a way to meet today's growing demand for a literate, "high-performance" work force. The idea is so new that a consensus has yet to emerge on how to go about it. But business executives and government officials agree that the future of the U.S. work force may depend on some such action. This report presents the background and chronology of the apprenticeship movement in the United States and addresses the current outlook and future of this school-to-work transition effort.

Council of Chief State School Officers. (1991a, November 11). Connecting school and employment (Policy statement). Washington, DC: Author.

The Council views the improvement of connections between school and employment as a critical catalyst in the restructuring of elementary and secondary education and the relationships among schools and other stakeholders in the community. The Council offers the following principles to improve the preparation of youth for gainful employment and continued learning:

- Schools must view preparation of youth for employment as being among their primary responsibilities.
- Every student should emerge from our schools having participated in a program which guarantees access to postsecondary education, training, and employment.
- Employers and employee organizations must assume new responsibilities for the development of youth and the institutional changes which support the growth and maintenance of a highly skilled workforce.
- Theoretical and practical knowledge must be integrated in the curriculum. Methods, materials, and strategies must support this integration.
- New, formal, and substantive alliances are required among schools, postsecondary education institutions, employers, employee organizations and social services organizations to prepare youth for maximum employment and life options.
- Structured pathways to further education and employment must be diverse, flexible, recognized by all stakeholders, and accessible to ensure the widest successful participation of students.
- It would be desirable to develop a national framework or structure of standards for employability skills.
- The essential purpose of assessments of workforce readiness is to improve student performance.
- Changes in how we prepare youth for the work place must be considered within the broader context of an economic policy for national and individual development, and within a social vision about the place of employment in people's lives and society.

The Council presents a set of 10 actions which should be taken in every state to establish curriculums that promote a school-to-work system.

Council of Chief State School Officers. (1991b, December 3). Lessons from other countries on systems for preparing youth for employment (Briefing paper). Washington, DC: Author.

Several European nations have developed both strong universal systems for assuring that all young people obtain an education that includes specific preparation for work, and special programs for disadvantaged individuals and groups that have fallen through the cracks of those universal systems. Among those studied in this paper are Germany, Denmark, and Sweden. However, because these European models are intricately imbedded in their respective cultures and are the products of centuries of development, extensive adaptation and culling of essential components will be necessary for application in the U.S. context.

British and Australian models offer lessons for the U.S. in the wake of their efforts to restructure their systems of youth education and training to provide better employment opportunities for their youth. The British created an extensive system of firm-based training supported through employment subsidies, and the Australians diversified the upper secondary curriculum with the emphasis on improved teaching and assessment strategies, not dilution of the academic quality of courses. The two strategies had drastically different outcomes. The British employment-based solution resulted in little impact on the school curriculum and lack of regulation to ensure that student credentials earned in the workplace were portable between firms or articulated with the formal education system. The Australian effort resulted in changes in the structure of basic education to meet the needs of a greater number of the youth cohort and to increase the high school graduation rate. It also resulted in new patterns of coordination among education, employment, and social security agencies of government and state-level curriculum reform.

CSR, Inc. & Meridian Corporation. (1991, March). Analysis of linkages in selected school-to-work and career advancement transition programs. Washington, DC: United States Department of Labor, Employment and Training Administration, Office of Work-Based Learning, Bureau of Apprenticeship and Training.

This paper focuses on issues related to transitions and linkages that facilitate them at entry-level employment, displaced worker employment, and advanced jobs. Directed toward employers, educators, and policy makers, this document includes specific examples and activities that can be adapted to the development or strengthening of local partnerships, and also discusses the lessons learned and effective strategies for linking work and learning. The lessons are broken down into the categories of linkages within programs, program operations, school-to-work program operations, and factors affecting successful program operations.

Concerning linkages within programs, the lessons are as follows:

- All partners must share a clear vision of program outcomes and work to achieve mutual goals.
- There must be a recognition of the time requirements necessary to create and institutionalize an effective partnership and program.
- Educational service providers must have a private-sector perspective.
- The partnership must foster a climate of negotiation and allow some organizations to play multiple roles.

- Partners must exhibit a top-down commitment that grows both vertically and horizontally within their organizations.
- The partnership must foster open, honest, and frequent communication.
- All employers, regardless of size or sector, should be included in the program.
- Involving a single school system in the partnership eases administration and facilitates communication.

Daggett, W.R. (1990). Preparing for employment in the 1990s. Albany, NY: New York State Education Department.

Vocational education in the United States is at a crossroads. The economic, social, and technological needs of this country throughout the remainder of the 20th century are going to be dramatically different from those that have existed during the past several decades. The road to success requires a major restructuring of vocational education, to include the following elements:

- a new vision of vocational education as an integrated and interrelated part of the overall education program for all students;
- a series of core skills provided by vocational education to all students within the education system;
- a comprehensive inservice program;
- traditional vocational education teaching methods and equipment, including the "hands-on" approach;
- a major public awareness program to convince people that vocational education in the future will provide a balanced program and transferable skills;
- reevaluation of regional vocational centers to ensure the provision of transferable skills to a broad range of students;
- upgrading and expansion of teacher education programs; and
- expanded efforts to increase student leadership development and cooperative work experience models in vocational education.

Darrah, C. (1990, November). An ethnographic approach to workplace skills. San Jose, CA: San Jose State University, Department of Anthropology and Cybernetic Systems.

This paper describes an in-depth ethnographic study of a computer assembly plant in Silicon Valley which indicated that a number of the assumptions governing the "future workplace skills literature" (FWSL) are not based on a real understanding of workplaces or workers.

The author argues that the FWSL contains a number of false premises, including the assumptions that skills are phenomena that can be described in universalistic terms (e.g. cooperation, higher order reasoning); that skills inhere in individuals rather than in groups; that skills can be described regardless of the context in which they are used; and that workers are reactors to management rather than active creators of the workplace. Much of the current literature regarding what skills workers need is defined by employers who have not consulted or studied workers, which leads them to emphasize skills deficiencies in workers, rather than deficiencies in the organization of the workplace.

There are several implications of this study for contextualizing education, including the fact that workplace skills are not transparent to the untrained observer; one cannot rely solely on employers to inform schools about what they should teach; and perhaps the most useful job-related skills are developed not in the classroom but in the actual context of working.

de Lone, R.H. (1991, July). School-to-work transition: Failings, dilemmas, and policy options (Issue Paper No.5). Philadelphia, PA: Public/Private Ventures and Brandeis University, Center for Human Resources.

From this review, three broad conclusions emerge which define the complex, elusive, and disjointed nature of the school-to-work topic:

- The thinking and policy initiatives that have emerged in the past 30 years drew on a range of intellectual sources and disciplines, seldom if ever meshed in useful ways, and have not yet converged in the kinds of consensus that might undergird coherent policy formulation in the future.
- The diffuse and polycentric nature of these shifting emphases and ideas reflect a significant underlying point: a multiplicity of institutions (and their underlying viewpoints) are spanned in the school-to-work transition and must be accommodated in any large-scale national policy.
- Nevertheless, two significant points of agreement do emerge and should find a place in any policy:
    - Education past the point of high school probably looms as essential for the young worker--thus opportunities for such attainment must be found; and
    - The role of work experience in the school-to-work transition, while probably limited, is significant and needs more focused exploration and development.

The report provides the following summary of findings:

- There is no adequate system for school-to-work transition, other than for those who successfully complete college.
- Policy attention has been erratic and disjointed.
- Improvements in the transition are entangled with broader issues of education reform and institutional change.
- Postsecondary education is increasingly important, but underdeveloped.
- The elements of effective high school programs are generally known, if rarely implemented. The necessary elements include:

  - A strong academic base, whether achieved through traditional academic courses with challenging content or programs that, drawing on the findings of cognitive science, integrate vocational and academic studies. There is strong research support for this conclusion.

  - A well-articulated, multi-year sequence of career guidance activities, including exposure to the range of occupations, general "world of work" demands, the educational and skill requirements of various careers, and sound counseling concerning course selection in school and postsecondary options. The quality of research support for this conclusion is at best fair.

- Work experience is important in developing the skills and maturity needed to succeed in the work force--but it must be offered as an integral part of a program, combining it with other services (i.e. basic education, counseling, skills training). Here, research strongly supports the basic importance of work experience, but less conclusively indicates the best ways to provide it as a program intervention.
- Transitional services, such as job-readiness training, job placement and job development programs, are effective in providing at least temporary advantages in employment and earnings to students who graduate from high school. Here, the research evidence is limited but consistent with related findings on the effectiveness of job readiness training and placement programs.
- Except in the fields where there is a clear employer demand for high school graduates with specific skill training--most notably, office occupations--secondary school training for specific jobs has little pay-off and should, increasingly, be deferred to the postsecondary level. While some analysts would dispute this finding, a preponderance of research supports it.
- However, secondary school programs built around occupational themes can be an effective mode of delivering basic education, as programs such as the High School Academies and exemplary theme-oriented magnet schools show. Research for this position is primarily descriptive and quasi-experimental.

- The broad principles of an effective system are understood, but the system itself--and some of its component parts--remain to be built.
- Implementation is as important as policy.

Douglas, A.M. (1992, March). Mending the rift between academic and vocational education. Educational Leadership, 49(6), pp.42-43.

The author of this article argues that the history of competition and distrust between academic and vocational components of schools has done nothing but embitter teachers and harm students. Educators must realize that today almost all education is vocational, and all teachers must work to integrate their coursework. Traditional academic and vocational education offerings should be complementary, thereby allowing the educational system to offer students the best education possible. A true reformation of curriculum calls for a required number of units of vocational study, allowing students to choose from offerings that meet their career objectives. Another action would be to retain vocational students at their school campuses in as nonrestrictive an educational environment as possible. Teachers must assume a shared responsibility for educating all students, for selling the virtues of academic and vocational elements alike, and for helping explain the importance and interrelationship of the two.

Doyle, D.P. (1989). Endangered species: Children of promise. Business Week, pp. E7-E135.

This special supplement to Business Week gives examples of business-education partnerships as solutions to education reform. Types of involvement include hands-on improvement efforts, increased employee education and training, education as a "market" for more efficient products and services, magnet schools such as La Guardia High School of Music and the Arts, and corporate academies.

After presenting the lessons learned, a call to action was issued for business to be involved in education. Business is interested today because long-term profitability depends on it. Education is the source of economic growth and prosperity; it is the foundation of our ability to compete in a changing world economy.

Drier, H. & Gysbers, N. (1989). Strengthening work-related education and training through improved guidance programs in the 1990s (Special Publication No. 58). Columbus, OH: Ohio State University Center on Education and Training for Employment.

This paper was prepared to highlight the centrality of quality comprehensive career guidance and counseling programs in national efforts to implement educational reform. The 31 state career guidance supervisors provided data demonstrating that career guidance funds have been well spent in the past, and that there is a need for increased levels of federal, state, and local funding. Evidence reported here makes it apparent that if funds are appropriated, state career guidance supervisors are ready to allocate those funds in ways that provide maximum help to students, youth, and adults.

The authors stress that guidance should be thought of as a program. Guidance programs should be comprehensive and provide a full range of activities and service to include assessment, information, counseling, placement, follow up, and follow through. A major emphasis in guidance and counseling should be on helping individuals identify the competencies they have as well as assisting them to develop new competencies. Guidance and counseling should be thought of as a team approach. Teachers and administrators have guidance responsibilities, but professionally certified individuals are central to the program. Guidance staffs should meet on a regular basis to exchange information and to update their programming as new student needs are identified.

Education Resources Group. (1991, January). An overview of evaluation research on selected educational partnerships. Education Resources Group. (ERIC Document Reproduction Service No. ED 325 536)

This paper reviews selected literature on education/business partnerships (EPB), highlighting the status of partnership evaluations and current methodologies. Researchers surveyed about 24 education/business partnerships to ascertain planning, implementation, and evaluation priorities, and concluded that the current state-of-the-art of partnership program evaluation is at an elementary level, leaders are just beginning to use evaluation to collect data needed for making informed program-related decisions, and there is a lack of precedent and experience and an absence of appropriate systems and instruments for evaluating partnership programs.

The author reviews the methods used to evaluate several education/business partnerships, including: documentation of collaboration and long-range planning processes of the METROLINK program by the Institute for Educational Leadership; qualitative review by Public/Private Ventures of nine school/business partnerships through site visits, observations, interviews, and document review of program materials; site visits, observations, interviews, debriefings with and written reports by technical assistants, questionnaire administration, phone follow-ups, and document review for the Ford Foundation's Urban School/Community Dropout Prevention Collaboratives from 1986 to 1990; a Rand Corporation study of school/community collaborations via case studies, semi-structured interviews, and document searches; case studies and "mini" case reviews of EPBs; document review, phone interviews, and site visits of 16 urban colleges by the National Association of State Universities and Land-Grant Colleges in 1981-84; interviews and evaluations conducted by the Career Beginnings program; questionnaire administration, phone interviews , and site visits by the IEL to evaluate 70001's Work, Achievement, and Values in Education Program in 1990; and day visits, interviews, and observations used in a study of local science education alliances in 1988. The review illustrates the need for more systemic evaluation of EBP programs and the need for additional inquiry, elaboration, and refinement of evaluation models.

Education Writers Association. (1990). First jobs: Young workers in a changing economy. Washington, DC: Author.

Today's young workers--the 20 million 16-24 year-olds who do not plan to go to college--do not receive the support they need to build a financially secure future for themselves, their families, or society. Interviews in five representative communities around the nation reveal that as we replace high-paying, low-skill jobs in the manufacturing sector with low-paying, higher-skill jobs in the service sector, young people are caught in a trap. First jobs are an important moment in the lives of youth--their first entry into the world of work. Unfortunately, these jobs rarely provide the skills which will be helpful elsewhere or allow a vision of a better future, and sometimes do not exist at all.

Certain common themes surfaced within communities nationwide, including the following:

- networks to find jobs do not exist for young workers today;
- jobs in growth industries are not growing fast enough to replace stable, good-paying manufacturing jobs which do not require advanced training;
- a tight job market is allowing employers to be more selective;
- many young people feel "overqualified" for their first jobs;
- many young workers are facing a heroic struggle to remain economically stable in the midst of difficult circumstances;
- low wages sometimes become an incentive for young mothers to stay on welfare;
- many adults say they were glad to have grown up 30 or 40 years ago;
- many young people feel that schools do a poor job of preparing them for work; and
- much of the job training that takes place comes from community organizations, which suffer from reduced federal funding, unstable local support, and high employee turnover.

Education Writers Association. (1992). Learning work: Redefining success in vocational education (Pre-publication copy). Washington, D.C.: Author.

The authors of this report believe that a consensus must exist that the purpose of secondary vocational education is to prepare youth with the ability to continue to learn either in a work or educational setting. The means to that end is not just a matter of adding courses or counselors, but the rebuilding of the infrastructure of education, from curriculum, to pedagogy, to assessment, to perceptions and expectations.

Today, good vocational education makes use of all of the changes in teaching that are on the cutting edge of reform--team teaching, cooperative learning, alternative means of assessment, experiential learning, applied learning, and addressing multiple intelligences. In these exemplary programs, narrow-skill focus and shop learning is a thing of the past. Exemplary sites visited by the Education Writers include the Health and Bioscience Academy of the Oakland Technical High School, the Paul M. Hodgson Vocational-Technical High School in New Castle County, Delaware, Rockbridge High School in Virginia, and the Rindge School of Technical Arts in Cambridge, Massachusetts.

Each of the schools is engaged in changing how students, parents, teachers, and policy makers think about youth not bound immediately for college. Each school is involved in the community and is building partnerships with employers and others. In some, the partnerships are broad--with colleges and businesses, networks and consortium--and the aim at change is no different than what might be observed in schools designed for college-bound youngsters. The major lesson may be that reforms that work for students are those that tailor the program, the teaching styles, the applications to their interests---that link real world and theory, life and work, students and workers, young people and adults.

Finn, C.E. (1992, March 23). Fear of standards threaten education reform. Wall Street Journal.

This article focuses on the debate surrounding three promising educational reform ideas: national school standards, exams keyed to those standards, and the use of exam results for such purposes as college admission and employee selection. The author is concerned that an important opportunity to reform an obsolete school system may be lost because of a fear of using standards. Implementers of these reforms face technical problems in creating high-quality exams and difficulties in convincing colleges and employers to use the exam results as leverage for improved performance; but this is an urgent undertaking, and something must be done quickly.

The author feels that four of the critics' claims bear special notice. First is the charge that the U.S. is headed toward a "national curriculum." The truth is that we already have something of the sort, courtesy of textbook publishers, network TV, and Hollywood, and the country would be better off with a purposeful curriculum tied to worthy goals. Moreover, under the program outlined by the National Council on Education Standards and Testing, ample room will remain for states, schools, and individual teachers to add to the core program and to select their own methods for achieving these educational goals. The second criticism is the fear that standardizing will curb innovation. The author counters that the opposite is more likely, as clear standards can be the centerpiece of radical change. Third, opponents claim that national standards and tests will harm groups that have often fared poorly in schools; but the author points out that it is today's "dumbed-down" curriculum and inflated test scores that deprive poor and minority students of their opportunity to participate fully in a competitive economy. Finally, the critics are right to note that standards and tests alone won't improve schools. Teachers must implement them; students must prepare for them; parents, employers, and communities must heed their results.

Fitzgerald, T. (1991). Education for work and about work: A proposal. Unpublished manuscript.

This paper examines the assumptions about work and working that guide "vo-tech" and "career education" programs in public school systems. Those programs essentially reflect the perspective of 19th century economic theorists who depicted work in the narrow terms of rational calculators vying in a labor market to maximize individual utilities. Schools continue to neglect the wider social significance and important meanings that occupation has in the lives of people who work. A list of non-monetarized values deriving from worklife is presented here, along with a proposal that discussion about them should be incorporated into school curricula in the upper grades. By directing students' attention to aspects of their future worklife beyond job skills, wages paid, and competitive success, schools can encourage students to appreciate the many ways their work will benefit from, and depend upon, its connection with a shared human community. Some methods by which this reorientation may be initiated are briefly discussed.

Ford Foundation Project on Social Welfare and the American Future. (1989). The common good: Social welfare and the American future (Executive Summary). New York: Author.

This report is based on a comprehensive review of Americans' social welfare needs and of policy alternatives for the 1990s and into the next century. A basic theme guiding much of the report was the recognition that all Americans at one time or another have to rely upon our system of social welfare protections. The report emphasizes a life-cycle approach, acknowledging the interdependence of all age groups and that needs change during the course of a lifetime.

The panel spent considerable time examining the growing problems of disadvantaged teens making the transition from school to work. Most of the recommended initiatives to ease the transition from school to work for poor adolescents and young adults do not rely heavily on Federal programs. The report does, however, urge that current Federal government spending for youth programs be sustained. Local communities are urged to take prime responsibility for designing and coordinating programs to prepare young people for the job market. Initiatives such as the Summer Training and Education Program (STEP), the Comprehensive Competencies Program (CCP), and Jobs for America's Graduates (JAG) illustrate some basic principles for success in this area. These principles include the use of schools to deliver integrated services, early detection and intervention, and private-sector involvement combined with adequate public-sector funding.

Fraser, B.S. and Charner, I. (1993). Challenging our communities: Purposeful action for youth transition from school to work. Washington, DC: Academy for Educational Development.

The National Panel on Work and America's Youth defined and examined the major issues relating to the range of present and future education-work needs for young people and employers. The Panel held roundtable discussions in four cities that have been actively developing programs to address these needs: Boston, Massachusetts; Portland, Oregon; Louisville, Kentucky; and Miami, Florida. These sessions focused on what was working in the communities, what was not, and what was needed.

The commonality of experience in the four cities reflects an emerging consensus that education and work are more interrelated than ever before in the lives of American youth. The four communities have responded by developing collaborative structures, school-based reform efforts, school-business partnerships, alternative curricula, and magnet schools. They have found potential in areas of workplace training, early intervention, mentoring, and high school-college collaborations while addressing shortcomings in the areas of vocational education, career guidance and counseling, and the integration of outside work experiences of young people within the educational system.

The primary lesson offered by the experience of the four communities is that substantial change is possible. Additional observations about the emerging consensus on education and youth employment include:

- The solution to our education-to-work issues will require close collaboration among local community agencies--particularly schools and employers.
- A major overhaul of our education system is required to meet the needs of all students but particularly those who are not college-bound.
- Most young people suffer at least a two-year hiatus in their transition from high school to employment during which no assistance of any kind is provided. The authors offer a detailed proposal for setting up Community Youth Development Councils, with a satellite Office of Youth Transition Services (OYTS) in every high school. The Councils would be the local institution responsible for overseeing all young people's movement from school into work or further education and training. The OYTS would be responsible for the education-work activities of all students during their school years. Activities and services would be carried out by a team of school personnel, business representatives, community specialists, and government employment development experts. The team would develop with every student a customized employability and transition plan and would help the students carry out their plans.

Freire, P. (1970). Pedagogy of the oppressed. NY: Herder & Herder.

This book describes the author's ideas about how to use contextual education to prepare students to participate in a democratic society. The author's premise is that every human being, no matter how "ignorant," is capable of looking critically at his world in a dialogical encounter with others. As this happens, the word takes on new power. It is no longer an abstraction or magic but a means by which man discovers himself and his potential as he gives names to things around him. Each man wins back his right to say his own word, to name the world.

And as those who have been completely marginalized are so radically transformed, they are more likely to decide to take upon themselves the struggle to change the structures of society which until now have served to oppress them.

Ganzglass, E., Ed. (1992). Excellence at work: Policy option papers for the National Governors' Association. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

This report represents one facet of the National Governors' Association's efforts to explore ways to address the diverse pressures affecting the U.S. economy and to recommend state-level strategies for promoting excellence in the American workplace. The policy papers presented in this volume were designed as background papers to guide the governors, business and union leaders, educators, and policymakers. They explore a number of key issues affecting the economy, as well as state options to address the issues within the context of the American workplace.

A consistent theme running through the papers is that government, along with the private sector, must adopt the principles of continuous improvement, flexibility, high productivity, and a devotion to quality in the way it deals with its customers--the individuals, firms, and communities served by its programs. For government as well as the private sector, these increased expectations must be achieved without the expenditure of additional resources. Significantly, these papers argue for systemic reforms, not new programs. The papers also focus on ways in which states can use their regulatory powers related to healthcare, workplace safety, worker compensation, and worker pay to create new workplace conditions that are most responsive to the changing needs of workers and employers. The papers propose new partnerships between government, employers, and workers that would redefine the traditional role of government regarding the economy. Among these is the role of government as catalyst for forging cooperative arrangements among firms to address common needs. Consistently, the papers focus on the unique needs of small firms as thy try to adjust to changing demographics and competitive pressures. The authors argue that state governments can achieve their greatest impact by focusing services and reforms on the needs of this important sector of the economy.

Overall, a world-class economy will require high-performance firms and workers. Consequently, the public and private sectors must make a commitment to increase the quality of goods and services produced. For states, this means integrating human resource and economic development policies to foster an economy of excellence.

Gapper, J. (1992, September). The new crafts. EQW Issues, pp.2-7.

This author of this article points to the rising dominance of "new crafts"--performing jobs that often involve sophisticated technical knowledge but are not done by people with bachelors' degrees--in the American economy. Predictions of occupational growth to the year 2000 show how important the new crafts are becoming. At the top are jobs that are largely unknown outside their own industries and professions, such as paralegals and surgical technologists.

Scores of new jobs are being created without sufficient notice of how they are changing the nature of work. Many employers have yet to realize the full significance of this change, and those who do often experience difficulty in finding the skills to fill positions created by the emergence of increasingly technical crafts. But the job market continually points to change in the kinds of skills needed. There will be hard challenges ahead as the economy switches from being dominated by manual workers to being dominated by professional and technical workers.

Yet enterprises and jobs are already altering without such change being planned. Schools and employers have started to demonstrate some of the innovations in work and education that will smooth the process of change. The task is to build on such strategies to ensure that the economy of the next century is a suitable place for the new crafts.

These changes in the workplace, signaled by the growth of the new crafts, present enterprises, schools, and individuals with huge challenges. American K-12 schools traditionally have not done well at preparing non-college-bound students for entry into the workforce. But the growth of the new crafts means a fresh task for schools in preparing students for jobs that do not fit the old categories of managerial or entry-level work. Without sacrificing academic rigor in the core subjects in math, science, and humanities, schools can present students with programs of learning that prepare them explicitly for meaningful work upon graduation.

The Getting Ready to Work Study Commission. (1989). Target 2000: A report to the Governor and the people of Vermont. Montpelier, VT: Author.

The Commission's mission was to design the academic, vocational, and technical training system needed to provide Vermonters with the skills necessary for the workplace. The Commission envisions an integrated work-oriented education system which provides Vermonters with access to education and training programs that prepare them for lifelong learning as well as immediate employment. It must prepare both youth and adults for the necessity of frequent retraining, and must be responsive to the needs of the business community through tailored training programs, focusing on core technical skills that are transferable to specific jobs.

The aim of K-12 education is to enable all students to master the skills essential for further education and training or for successful entry into the workplace. Those skills are communication, critical thinking and problem-solving, mathematics, science and technology, economics and citizenship, history and culture, and personal and career development. The aim for vocational/technical education is to deliver comprehensive, work-oriented technical education and training from grade 11 through the associate degree level, and to those already in the workforce.

Gitter, R.J. (1992, April). Job training in Europe: Lessons from abroad. Monthly Labor Review, pp. 25-29.

The goal of Europe 1992 has been to reduce barriers to the movement of capital, resources, and labor throughout the European Community nations. This report focuses on changes in worker training that are occurring and will continue to occur with the coming of this internal market.

There are two major lessons that the United States can learn from the European Community's structural fund programs, particularly the European Social Fund and the European Regional Development Fund. First, the U.S. might explore the possibility of combining Social Fund-type programs, which give grants for fighting long-term and youth unemployment, with the Development Fund-style programs that give grants for regional development. The second lesson is that structural fund grants can be a valuable incentive to create training programs for new occupations or for occupations where critical skill shortages exist.

Another set of lessons comes from the European Community Training Programs such as PETRA, FORCE, COMMETT, LINGUA, and ERASMUS. In addition, the levy-grant system can be used to lessen employer fears that once workers are trained, they might be pirated away to a competing firm. A payroll or corporate income tax would be levied on those firms employing workers in selected occupations. The proceeds of the tax would be used to provide grants to set up community training programs or to reimburse those firms that provide worker training.

Grobe, T., Curnan, S.P., & Melchior, A. (1990, December). Synthesis of existing knowledge and practice in the field of educational partnerships. Waltham, MA: Brandeis University Center for Human Resources. (ERIC Document Reproduction Service No. ED 325 535)

This report presents a brief history of business/education partnership development, using the development of the Boston Compact in 1975 as an illustrative case study. Several points are highlighted, including the fact that partnerships embrace diverse territory and goals; a partnership is a process, not an event; a partnership is a relationship between institutions and people within those institutions; and the goals and form of a partnership change and evolve. Benefits of partnerships are considered in terms of gains for business, education, higher education, parents and students, and the community. Three typologies of business/education partnership development are presented: 1) levels of involvement (incorporating three stages--support, cooperation, and collaboration); 2) partnership structure (simple, moderately complex, and complex); and 3) levels of impact (containing six categories--partners in: special services, the classroom, teacher training and development, management, systemic educational improvement, and policy). The paper concludes with a brief discussion of outcome measures and evaluations of the six types of partnerships.

Grubb, W.N. (1992, March). Giving high schools an occupational focus. Educational Leadership, 49(6), pp.36-43.

Recent developments in American schools have created a paradox: even as the high school has become increasingly crucial to occupational futures, most students regard it as an "academic" exercise. Fortunately, there are ways to restore the high school's occupational relevance and simultaneously address its most serious failings. Several of these reforms reverse the century-old division between academic and vocational education. This article looks at three approaches that attempt to reshape both the academic and the vocational components of the high school: academies, occupationally focused schools, and occupational clusters.

Academies usually operate as schools-within-schools. They exist in many occupational areas and often have a close relationship with businesses operating in the core occupational area. Occupationally focused schools such as magnet and focus schools have clear missions, are organized to pursue their educational goals and solve their own problems, and operate with clear social contracts that establish responsibilities for teachers, students, and parents. Occupational clusters are different from the first two options because every student is in one occupational cluster or another, and students can choose among clusters within a school rather than among schools. Schools with such a system may replace conventional departments with departments organized along occupational lines, or retain conventional departments with occupational clusters cutting across departments.

The three approaches to restructuring the high school can be interpreted as ways of reforming vocational education, but their greatest promise lies in redressing some of the most persistent failures of the high school by:

- eliminating the "shopping mall" high school;
- improving the teaching of all subjects;
- enhancing the engagement of students;
- reducing the isolation of teachers;
- reducing tracking and segregation of students;
- preserving options for all students;
- improving guidance and counseling; and
- providing a vision for business participation.

Creating an occupational focus for high schools is not necessarily an end in itself. Instead, it provides a vision of education and a way of overcoming some deficiencies of the high school, including those that developed from the original division between academic and vocational subjects between college-bound students and those bound for work.

Grubb, W. N., Davis, G., Lum, J., Plihal, J., & Morgaine, C. (1991, July). The cunning hand, the cultured mind: Models for integrating vocational and academic education. Berkeley, CA: University of California, National Center for Research in Vocational Education.

This report examines the response of selected school districts to the mandate of the 1990 Amendments to Carl Perkins Vocational Act requiring every program funded by federal funds to "integrate academic and vocational education in such programs through coherent sequences of courses so that students achieve both academic and occupational competencies."

Rather than arguing for one "best" approach, the report describes the following eight models of integration, which combine experiences from several different schools.

1. Incorporating academic content into vocational courses.
2. Combining vocational and academic teachers to enhance academic content in vocational programs.
3. Making academic courses more vocational, that is including practical material from technology and workplaces.
4. Curricular alignment both vertical and horizontal. Academic and vocational courses are changed and coordinated across courses and over time.
5. Senior projects that involve both academic and vocational skills.
6. The high school academy model in which there may be an alignment of courses and vocational and academic teachers may collaborate.
7. Occupational and magnet high schools.
8. Occupational clusters or "career paths" are created within schools.

The authors conclude that most successful efforts will require the following prerequisites:

(1) vision and leadership; (2) consistent support form district administrators and state officials;(3) new resources for the following: time for staff to develop curriculum, staff development, materials, counseling around future work and careers, smaller classes, a rich variety of vocational courses, sustained effort over time--at least five years are needed to develop effective integrated models; (4) teacher training; (5) institutionalization through extending the responsibility for creating change to a number of teachers in a given school.

Grubb, W. N., Kalman, J., Castellano, M., Brown, C., & Bradby, D. (1991, September). Readin,' writin', rithmetic' one more time: The role of remediation in vocational education and job training programs. Berkeley, CA: University of California, National Center for Research in Vocational Education.

This report examines the relationship between vocational education/job training and remedial education. The report focuses on the three issues of coordination between the major providers of remedial education and job-specific training, the effectiveness of current remediation efforts, and the teaching methods used in remedial education. The authors examined remediation practices that they found prevailed in a wide variety of institutional settings, including community colleges, technical institutes, adult basic education programs, JTPA programs, and secondary vocational schools. Based on their findings, the authors recommend the following:

- Coordination of training and education programs must include tracking of individuals to see how they fare in educational programs, and whether the education programs fit their needs. Individuals should also be referred to programs that are known to be effective.
- Programs should be evaluated for their effectiveness with different groups of students. Evaluations should include comparisons of different pedagogies and different approaches--"skills and drills," functional context, "meaning making," eclectic programs that combine several approaches, etc.
- Policy makers need to confront the issue of appropriate pedagogy both in terms of how students are taught and what resources need to be placed into training teachers.

Hamilton, S.F. (1990). Apprenticeship for adulthood: Preparing youth for the future. New York: The Free Press.

The essential elements for apprenticeship are already in place in the United States. However, they are scattered across the country in programs enrolling small numbers of young people. These programs can be regarded as seeds of a system that will enable every young person to move through a coherent sequence of apprenticeship experiences that are clearly connected to each other and to schooling.

The author creates a portrait of Lakeland, an imaginary city, to suggest the value of creating a comprehensive system of apprenticeship in one community. Demonstrating how a coherent system would work is the highest priority because the efficacy of apprenticeship's key elements has already been demonstrated by existing programs. What remains to be determined is whether they can be combined into a system as comprehensive in its own way as the West German dual system. Such a demonstration would tie together what are now unconnected programs to fill in the gaps and to assure that the same youth have access to all of the programs. This demonstration would depend upon governments at all levels, the school system, employers, unions, employment training agencies, and social service agencies. The next step would be to involve national institutions in a nationwide effort. We must have the collective patience and the political will to eschew both the expectation of a quick fix and unexamined faith in a new approach.

Hamilton, S.F. (1987). Work and maturity: Occupational socialization of non-college youth in the United States and West Germany. Research in Sociology of Education and Socialization, 7, 283-312.

The article compares U.S. and West German preparation of youth for work. Non-college youth face two severe difficulties as they move into careers in the U.S. The first is a floundering period, wasteful because potentially productive workers are relegated to marginally productive tasks. High school graduation is supposed to be a rite of passage to adulthood for those not continuing their education, but the reality is that adult economic status in the form of career-entry employment is withheld from most teenagers, and in an individualistic society they blame themselves for failing to achieve adult status. The second weakness has to do with perceived failure. Given the educational system's openness, a college degree and white-collar employment are considered attainable by all who possess adequate intelligence and ambition. This has an undesirable consequence of labeling as failures anyone whose attainments are less prestigious.

The best of both systems would provide a broader, more generic occupational training than traditional apprenticeship and be combined with academic schooling for all secondary school students. Such a system would rely on supervised learning experiences in the workplace.

This study shows that non-college youth acquire attributes and behavior required for effective functioning as workers more readily and effectively through apprenticeships in West Germany than in the U.S. In terms of accepting their position in the social structure, the author feels that a system that moves the majority of non-college youth into career entry positions in the primary labor market by age 18 or 19, with compensation established by collective bargaining and real opportunities for further advancement, is at worst no less discriminatory than one that relegates its high school graduates to three or four years of floundering in the secondary labor market before offering career-entry employment in adult jobs.

Hamilton, S.F., Hamilton, M.A., & Wood, B.J. (1991, September). Creating apprenticeship opportunities for youth: A progress report from the youth apprenticeship demonstration project in Broome County, New York. Ithaca, NY: Cornell University.

This publication reports on the Youth Apprenticeship Demonstration Project in Broome County, New York. The following principles are cited as guiding the design of the project, and will be tested and refined as the project proceeds:

1. Apprenticeships structure learning through work.
2. Youth apprenticeship is potentially appropriate for anyone.

3. Apprentices are employees.
4. Apprenticeships are organized by career areas, not specific jobs.
5. Apprenticeships will give young people academic diplomas as well as job certification.
6. The apprenticeship project is a Cornell University research and development project.

The key challenge in designing an apprenticeship is to identify specific work tasks that an inexperienced youth can perform and that will contribute to his or her acquisition of workplace competence. Competence in the workplace is based on the following elements: procedures, rules, principles, systems, communication, computer use, thinking, initiative, teamwork, and commitment to excellence. An apprenticeship should initially be rather broad to enable a young person to take more than one career path, delaying specialization until she or he has more experience, a clearer idea of career prospects, and greater maturity.

The report concludes with the note that as the researchers work in the coming year toward building a system of apprenticeship, they will be concentrating on the following tasks: developing and refining the curriculum for apprentices; training employers and school staff; creating systemic links between employers, schools, apprentices, and their parents; and conducting research to inform project development.

Hamilton, S.F., & Hamilton, M.A. (1992, March). A progress report on apprenticeships. Educational Leadership, 49(6), pp.44-47.

Apprenticeships have recently reemerged as a promising strategy for improving education, especially (but not exclusively) for those who enter the work force immediately after high school. Two important features that distinguish apprenticeships from classroom teaching are that the teacher demonstrates and coaches rather than telling, and the student performs real work.

Germany has a great system of apprenticeship, and the U.S. would benefit by applying the principles behind the German system to our institutions and values. The basic principle of German apprenticeship is that it uses workplaces as learning environments for youth, and the learning and work are related meaningfully.

In Broome County, New York, Cornell University has initiated the Youth Apprenticeship Demonstration Project to investigate how we can adopt some of Germany's principles of apprenticeship in U.S. schools. A set of principles have been developed to guide in adapting elements of German apprenticeship to this country:

- Apprenticeships are organized by career areas, not specific jobs.
- Apprenticeships structure learning through work.
- Employers develop a learning environment for apprentices.
- Schools adapt instruction to take maximum advantage of apprentices' work experience.
- Training and support are provided to classroom teachers, training directors, area coordinators, coaches, and mentors.
- Youth apprenticeship is potentially appropriate for anyone.

- Apprentices are employees.
- Apprenticeships lead youth toward academic diplomas and certification.
- Employers and schools assume operating costs for the apprenticeship program.

Hamilton, S.F., & Powers, J.L. (1990 December). Failed expectations: Working-class girls' transition from school to work. Youth and Society (Vol. 22, No.2), pp.241-262.

This article discusses in what ways and under what conditions work is good or bad for high school students--in particular how work affects working-class girls. The authors conclude that work can be good for youth, but there are two limitations. One is that too much work can interfere with commitment to school, which pays off at a higher rate in the long run than work experience. The second is that the kinds of jobs available to youth often have nothing new to teach after the first few months of initiation.

The authors suggest that the United States should expand and strengthen such practices as cooperative education, experience-based career education, community service, and mentoring, and incorporating them within a system that provides every young person with a sequence of experiences both in school and out that contribute to her or his competence to assume adult roles. Experiences of this kind, which entail treating workplaces of all kinds as learning environments for youth, are valuable for all youth. They are essential for young people, especially those who are female or non-White, not going on to college. The working-class females in the authors' sample had a difficult and disappointing transition from high school to full-time employment. In order to reduce those difficulties and to optimize the benefits to be gained from high-quality work experiences, schools and workplaces must find new ways to foster the transition of disadvantaged youth from school to career.

Herr, E.L., Ed. (1992). The school counselor and comprehensive programs for work-bound youth: Position paper. American Counseling Association.

This position paper reaffirms the commitment of the American Counseling Association to the career development of all children and young adults--including those who do not seek a college education after high school. The paper explores the range of comprehensive programs that foster development of work-bound students, then addresses the multiple roles of school counselors in implementing these programs.

School counselors provide a wide range of assistance to work-bound students, including guiding, counseling, referring, assessing, coordinating resources, collaborating with other youth service providers, and developing and managing outcome-focused programs. In the future, counselors will be expected to assume an even more active role in assisting work-bound students to prepare for the transition from high school to full-time employment, training for work, or both. Most counselors will be trained to implement the following: provide access to information, instruction, career counseling, advocacy, consultation, and program development and management.

Hotchkiss, L. (1986). Work and schools--complements or competitors? In K.M. Borman and J. Reisman (Eds.), Becoming a worker (pp. 90-115). Norwood, NJ: Ablex.

This chapter explores the controversy which has arisen over the desirability of youth working part-time while attending high school. On the one hand, a sequence of policy papers has argued that work during high school should be encouraged because it promotes good work habits and knowledge of the world of employment. This position is bolstered by research papers showing positive effects of high school work on wages and earnings after leaving high school. On the other hand, Ellen Greenberger and her colleagues argue that such policy is ill-considered because working during high school interferes with commitment to school and is associated with deviant behavior. This paper helps to elucidate this controversy by investigating effects of part-time work during high school on work socialization variables, including school-related behaviors and career expectations. The investigation does not reveal any deleterious side effects of working during high school.

Hoyt, K.B. (1989). Counselors and career development-a topic in educational reform proposals. Bloomington, IL: Meridian Education Corporation.

Many counselors have expressed concern that the guidance and counseling domain has received insufficient emphasis in the most popular and influential national calls for educational reform. The purpose of this report is to provide data useful to those wishing to test the validity of those fears. Each of the 29 reform proposals was picked in part on the basis of whether or not it seemed appropriate to assume that the topic of "career guidance" would be included within its contents. This has led to a relative overload of reform proposals placing primary emphasis on the goal of education as preparation for work. This purposeful bias was inserted in an attempt to make the topic of "educational reform" most meaningful to career guidance counselors.

The implications of this report's findings are that the guidance and counseling movement has not been completely ignored by the "educational reform" proposals of the 1980s. However, only one out of seven major proposals centering around general reform of the K-12 education system supported an increase in counselors and/or an increased emphasis on the guidance function.

Hoyt, K.B. (1990, Fall). A proposal for making transition from schooling to employment an important component of educational reform. Future Choices, 2(2), pp.73-86.

There is no doubt that "transition from schooling to employment" problems are currently being solved less well by U.S. policy makers than by their counterparts in other industrialized nations. Based on the available evidence, it is easy to see why the "apprenticeship concept" as seen in various forms of work-based learning has great appeal as a possible solution to this problem. In this article, the effort is made to put the problem in preliminary perspective with reference to K-12 educational reform initiatives in the education/work relationship domain; to discuss some of the major factors contributing to America's relative lack of success in solving the youth school-to-work transition problem; and to suggest some possible solutions holding potential for making "transition from schooling to employment" an important component of educational reform in America.

The author concludes that the chances of improving the effectiveness of the total vocational education program through insertion of an "Apprenticeship--American Style" component appear to be good if it is conceptualized as a supplementary program, as opposed to a substitute, to be added to existing experiential learning aspects of vocational education. Such a proposal must also be accompanied by strong programs of career development--including career awareness, career exploration, career planning, career decision-making, and career placement. If the total effort is to operate in the most efficient and effective manner possible, it must also be tied very closely to programs designed to improve educational productivity through the educational reform movement in American K-12 education.

Hull, D. & Parnell, D. (1991). Tech prep associate degree: A win/win experience. Waco, TX: The Center for Occupational Research and Development

This book is a how-to guide for policymakers, state educational leadership, administrators, faculty and counselors, and anyone involved in Tech Prep/Associate Degree (TPAD). It also provides useful information for employers, parents, students, community and business leaders, and economic development organizations.

The first five chapters contain rationale, methodology, structure, process, and advice for forming and operating a TPAD consortium. The next two chapters scrutinize examples of TPAD programs developed across the country by different types of people, in different environments, and for different purposes. Chapters eight and nine address issues of recruiting and retaining TPAD students, and the last chapter of the book deals with the feelings and appraisals of people in a key role who have each experienced a TPAD consortium.

The book presents a TPAD model in terms of educational philosophy, curricula, strategies, methodology, and anticipated outcomes. Its appendices provide curriculum models for TPAD, facts about applied academics, tips about using applied academics to improve general and vocational education in the high school, and helpful TPAD resources.

Hull, G. (1991). Examining the relations of literacy to vocational education and work: An ethnography of a vocational program in banking and finance. Berkeley, CA: National Center for Research in Vocational Education.

This report is a three-year ethnographic study of a Banking and Finance Program at Lake Community College in California which was undertaken to explore how students, employers, and instructors viewed the goals, curriculum instruction, and program outcomes. The program was open entry/open exit and targeted adult students, primarily African American women.

The author concludes that the program could have been greatly improved if it had included more contextualized literacy training--both workplace reading and writing materials as well as critical perspectives on the workplace; used updated technology; offered a longer course with a perspective on various career options in banking; and counseled students in choosing among these options.

Finally, the author concludes that to reform such programs along the lines she recommends would not be sufficient without major changes in the organization of work (full-time work with benefits, childcare, career ladders, etc.) The change in education cannot be isolated from needed changes in the workplace required to make them humane.

Imel, S. (1989). "Employers' expectations of vocational education." ERIC Digest (No.90, EDO-CE-89-90). Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education.

This ERIC Digest examines changing employer expectations for vocational education. First, the types of skills employers expect workers to possess are described. Next, research findings related to employers' perceptions of vocational education are presented. Finally, some recommendations are made related to vocational education's role in preparing youth and adults for employment.

The following categories of skills that employers expect in workers represent the synthesis of a number of lists: basic skills in reading, writing, and math; communication skills, both speaking and listening; problem-solving ability; employability skills; reasoning skills; leadership skills; computer literacy; interpersonal skills; ability-to-learn/learning-how-to-learn skills; and collaborative/teamwork skills.

The following common themes related to employer expectations for vocational education emerged from the studies' findings: vocational education should be focused on basic skills; better communication is needed between vocational educators and employers; there is a need for an improved image for vocational education; and employees need to have employability skills, as employers are concerned about what is perceived to be a decline in the traditional work ethic.

Despite the fact that changes in the workplace require workers with a broader range of skills, employers still seem satisfied with the vocationally trained graduates that they hire. However, based on employer comments about their experiences with vocationally-trained employees, the following needs still exist:

- more communication and closer collaboration between business/industry and education;
- more and better publicity concerning vocational education;
- the teaching of basic academic skills integrated into vocational instruction;
- identification and instruction in a common core of employability skills that are transferable across occupations, including problem-solving and decision-making skills and the skills necessary for getting and keeping a job;
- more opportunities for supervised work experience that provide close articulation between in-school educational experience and on-the-job experience; and
- emphasis on applied basic skills and employability skills in secondary programs and technical skills in postsecondary programs.

Inger, M. (1990, November). Community-based strategies for work-related education. NCEE Brief (No.10).

This RAND/NCEE study supported a community-based strategic planning effort of the work-related education system in the Pittsburgh metropolitan area. The paper briefly reviews the rationale for the advocacy of a strategic planning process and summarizes the lessons learned.

Included among the lessons learned was the confirmation of the decision to treat the labor market as the unit of analysis and to view the variety of actors concerned with work-related education as components of a larger educational system. A second lesson is that even when leaders recognize the need to look beyond their own separate jurisdictions and institutions, concerted action is difficult. The absence of a mechanism for promoting concerted action across jurisdictions has made the task of creating a larger vision of the public welfare difficult. The need for a cross-jurisdictional approach is clear. Since the system is neither centrally designed nor centrally managed, a critical question is whether the elements of the system, acting independently of each other, are adequately adjusting to the major shifts in demand for education and training. Decisions concerning the specifics of curriculum and instruction are generally left to individual institutions, subject to state regulations and accreditation requirements. Both a jointly held vision of strategy of education and mechanisms for coordination of program development are needed.

The researchers of this study recommend types of actions that might serve to improve the functioning of the work-related education system, including regional leadership, performance indicators, testing and counseling, and collaborative program development. The researchers do not advocate the construction of a formal system, stating that if a community wants to assess and improve its work-related education, it must have a vision larger than that of any single educational entity in the community. The art of actually achieving the larger goal of reforming an entire system lies in finding and taking concrete actions that allow the participants to learn and develop a shared vision.

Institute on Education and the Economy. (1992, March). Post-high school employment and schooling patterns of non-college bound youth. IEE Brief (No. 3).

This Brief examines the patterns of schooling and employment reported by high school graduates in 1980 between June, 1980 and March, 1986. The research represents an attempt to produce a systematic study of the actual patterns of experiences for young people who do not go directly from high school to college, in an attempt to better inform policymakers regarding what constitutes successful school-to-work transition.

The researchers discovered several striking findings regarding the post-high school experiences of the 1980 high school graduates. The most remarkable finding is that a large proportion of youth--20%--were neither employed nor in school six years after high school graduation. This condition was more common among females than males, and among Hispanics and blacks than among whites.

Another striking finding is that nearly three-fourths of the youth who were enrolled in school during this six-year period were also employed. The distinction between school and work is beginning to fade, so that the perception of whether holding a job while attending school is negative or positive may depend on how the individual interprets the situation.

The data also show a substantial amount of fluidity in the early careers of youth who do not enter college directly after high school, but the transition patterns are not easily explicable by the tried-and-true indicators of social background, such as racial/ethnic group or family socioeconomic status. These findings can be read in two ways--one positive and one troubling. The positive implication is that the non-collage bound are not constrained by their high school experiences. In this sense, the system seems to maintain access to education and training regardless of how poorly the youth did in high school. The troubling implication can be posed as a question: Although they may have access to further education, is the quality of training that non-college bound youth receive in postsecondary institutions so undemanding and unchallenging that the level of young people's preparation and performance in high school makes little difference?

Overall the results suggest that the critical branching point is not whether one goes to postsecondary school, but when one does. The evidence now is that although many non-college-bound youth acquire some postsecondary education, the consequences of that education are less positive than for those who go directly to college. This is not necessarily a result of the timing; it may simply be a reflection of the life circumstances of the groups who go directly to college and those who do not.

Jobs for the Future. (1991, September 10). Essential elements of youth apprenticeship programs: A preliminary outline. Somerville, MA: Author.

This paper describes design elements that are essential if youth apprenticeship is to be a viable, attractive, and worthwhile opportunity for large numbers of American young people, and lists desired outcomes for participating institutions and learners. Jobs for the Future has established the following basic elements as minimal requirements for a successful youth apprenticeship program:

1. Work experience and guided learning opportunities provided for participants by employers within an industry or occupational cluster.
2. A structured linkage between secondary and postsecondary components of the program, leading to high school diploma, postsecondary credential, and certification of occupational skills.
3. Close integration of academic and vocational learning and of school and workplace experiences through planning and ongoing collaboration between schools, employers, relevant unions, and other key institutions and through innovations in curriculum and instructional strategies in the classroom and at work.

Johnston, W. B. and Packer, A. H. (1987). Workforce 2000: Work and workers for the 21st century. Indianapolis, IN: Hudson Institute.

Hudson Institute researchers indicate key trends that will shape the last years of the 20th century and key points about the U.S. economy in the next years, as well as important demographic facts. Utilizing these indicators, researchers developed six policy challenges that deserve greatest attention:

1. Stimulating world growth.
2. Improving productivity in service industries.

3. Improving the dynamism of an aging workforce.
4. Reconciling the demands of women, work, and families.
5. Integrating Blacks and Hispanics fully into the workforce.
6. Improving workers' education and skills.

Four key trends will shape the last years of the 20th century:

1. The American economy should grow at a relatively healthy pace.
2. U.S. manufacturing will be a much smaller share of the economy in the year 2000.
3. The workforce will grow slowly, becoming older, more female, and more disadvantaged.
4. The new jobs in service industries will demand much higher skill levels.

Five important demographic facts about workers and jobs in the Year 2000 are:

- The population and the workforce will grow more slowly than at any time since the 1930's.
- The average age of the population and workforce will rise, and the pool of young workers entering the labor market will shrink.
- More women will enter the workforce.
- Minorities will be a larger share of new entrants into the labor force.
- Immigrants will represent the largest share of the increase in population and workforce since WWI.

Kerka, S. (1989). "Cooperative education: Characteristics and effectiveness." ERIC Digest (No.91, EDO-CE-89-91). Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education.

This ERIC Digest looks at evidence from the literature on cooperative education (co-op)'s benefits for students, schools, and employers. It examines some of the issues raised by the program's advocates and detractors and summarizes recommendations about the future of cooperative education.

The picture of co-op that emerges from a review of the literature has two faces. On the one hand, anecdotal and some research evidence demonstrates that benefits are realized by some students, institutions, and employers. It appears to work best in metropolitan settings, in community colleges, and for students majoring in engineering, business, and health occupations. On the other hand, it appears to be a small marginal program lacking the scope, funding, visibility, and impact to be a vehicle for workplace transformation, as has been promoted by some advocates.

Given co-op's theoretical potential, the economic challenges facing the nation, and the current emphasis generally on school-business partnerships, what can be done to increase co-op's effectiveness and impact?

- Recruit larger numbers of the students most likely to benefit from co-op

- Develop new markets of potential students--foreign, adult, women, minority, and disabled students
- Promote co-op as a viable alternative to heavy borrowing for college expenses
- Formulate a rationale for co-op as the bridge between theory and practice and a natural component of general education
- Promote co-op as a vehicle for joint school-business ventures
- As multinational companies increase, develop international placements

Kilborn, P.T. (1992, June 8). Inner-city jobs program throws young a lifeline. The New York Times, pp.A1, B6.

This article describes Youth Build Boston, a school which is gaining recognition as a wellspring of human reclamation, a private program for training the hard core of unemployed urban youth, with a model that is replicable in other cities.

Youth Build's first priority is building the student's self-respect, teaching them leadership and helping them take control of their lives. Youth Build schools take students aged 17-25 and pay them $500 per month, plus bonuses and raises for good work and good attendance. They spend alternating weeks going to classes to catch up on their lost time in high school, and getting on-the-job training in carpentry by renovating abandoned housing for the poor. Students get the skills to get the jobs to build the homes the community needs, and once they are finished the program, they can keep up the work. The Youth Build schools may eventually teach health care skills. Youth Build is too new to have established a track record, but researchers who have begun evaluating the program feel that it is off to a positive start.

Lacey, R.A. (1988, May). Building the watertable of youth employability: Collaboration to support children and youth at risk between ages nine and fifteen (Research Report No. 88-08). Washington, DC: National Commission for Employment Policy.

This analysis presents eight recommendations to guide a confluence of public and private resources to support and prepare disadvantaged youth to build social and academic skills and self-confidence as they begin formal preparation for employability and postsecondary training or higher education. The recommendations include:

- Program planners should concentrate on building leadership and social skills among middle grade students.
- Adult participants should be trained to understand the dynamics of early adolescents development and multicultural factors in attitudes and behavior.
- Children and youth at risk should not only be provided with a wide array of supportive services, but should be afforded opportunities to provide services to others as well.
- Public school systems that serve high concentrations of children and youth at risk should create policies that encourage maximum flexibility and responsibility for decision- making at the school building level.
- Creative uses of the JTPA funds should be encouraged and expanded through intensive collaboration between JTPA and school officials.

- Title II-B funds that are currently restricted to summer employment should be made available to provide remediation and support services for the full year.
- Leaders of public-private collaborations must recognize and adapt to the extensive demands and complexities of partnerships aimed toward ambitious goals of human resource development, minority youth employment, and school improvement.
- Programs should be conceived, developed, and promoted around the provision of the maximum exposure to disadvantaged youngsters of options in careers, career paths and lifetime learning.

Lacey, R.A., & Kingsley, C. (1988). A guide to working partnerships. Waltham, MA: Brandeis University, Heller School, Center for Human Resources.

The authors of this guide state that America's future economic, social, and cultural well-being is tied to how our communities address the needs of disadvantaged youth. Work-education partnerships between public high schools and businesses focus on increasing the employability of economically disadvantaged kids who have not dropped out of school. The network of 21 "Partnership Projects," fostered by the Edna McConnell Clark Foundation, demonstrates an important approach to services for improving the economic success of academically-average, often-overlooked young people from disadvantaged backgrounds. Lessons learned from these project partnerships include the following:

- Collaboration must be brokered and managed.
- Identify and bring together a core group of key business, education, and government leaders and elicit their firm, long-term support.
- Work to instill a sense of "ownership" for the partnership in each player.
- Enlist the involvement of all key players during the project's earliest days--this often means marketing the program's benefits based on the self-interest of the individuals and organizations being recruited.
- Jointly develop formal plans that include short- and long-range goals, measurable objectives, concrete tasks, and precise specifications.
- Evaluation, management, and communication systems are key to successful partnerships.
- Partnerships must be prepared for change.

Lacy, G., Johnson, C., & Heffernan, D. (1989, March). Tackling the youth employment problem. Washington, DC: Children's Defense Fund.

This report stresses that state youth employment initiatives offer no substitute for the aggressive pursuit of strong employment conditions through the federal government's management of the national economy and its investments in the American work force. Yet at the same time, individual states still have important roles in preparing young people for the world of work. States can shape the structure and design of a youth employment system to ensure that it responds to their unique circumstances and needs.

What is needed now is the political will within states to invest in the future productivity and employability of their young people. In many states, there is a growing recognition of the importance of such investments, driven largely by an awareness that inadequate education and employment preparation for the shrinking pool of young workers is increasingly an obstacle to economic development and growth. The programs described in this report outline some successful efforts states are making to meet the increasing need of improving youth employment opportunities. Building upon this experience, every state that has not already done so should take the following steps:

- Fund school-to-work transition programs.
- Establish state and local conservation and service corps.
- Make creative use of nonprofit corporations to improve remedial education and vocational training.
- Create a cabinet-level coordinating body focused on at-risk youths.
- Extend state education financing to alternative programs serving school dropouts.
- Expand opportunities for out-of-school learning.
- Link state apprenticeship programs with youth employment initiatives.

Lankard, B.A. (1992). Integrating academic and vocational education: Strategies for implementation. ERIC Digest (No. 120, EDO-CE-92-120). Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education.

This ERIC Digest reviews recent literature on the integration of academic and vocational education, highlighting the rationale, goals, and focus of integration efforts and describing eight models of integration and elements necessary for success. Grubb et al. identified eight integration models, including:

1. Incorporating more academic content in vocational courses.
2. Combining vocational and academic teachers to enhance academic competencies in vocational programs.
3. Making academic courses more vocationally relevant.
4. Curricular "alignment": modifying both vocational and academic courses.
5. The senior project as a form of integration.
6. The Academy model.
7. Occupational high schools and magnet schools.
8. Occupational clusters, "career paths," and occupational majors.

The appropriate model for each state, district, school, and area must be determined after considering existing programs, local labor markets, and student needs. However, several elements of success have been identified, including vision and commitment from all levels, consistent support from district administrators and state officials, new resources for funding, autonomy for teachers, teacher training and retraining, evaluation of efforts, and adequate time for implementation.

Lankard, B.A. (1991). Tech prep. ERIC Digest (No.108, EDO-CE-91-108). Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education.

Tech prep, an articulation partnership between secondary vocational-technical schools and postsecondary institutions, is a model developed to help people prepare for careers in today's society which demands increasingly technical knowledge. It is an articulation effort that involves the coordination of curricula across two or more institutions to ensure that graduates possess the prerequisite knowledge and skill required for employment in a chosen occupation. Tech prep can be described as an "advanced skills" articulation model because it enables students to acquire the more advanced occupational knowledge and skill required by changing technologies. Factors influencing the success of tech-prep articulation efforts include: counseling, orientation, mentorship, automatic admission to postsecondary institutions, and faculty preservice and inservice training.

Many noteworthy articulation arrangements and programs are in operation (or in the initiation phase) at high schools and community colleges across the country. These programs typically give attention to problems of underprepared students, duplication of effort, and limited budget resources. They require coordination and collaboration between faculty at participating institutions to address curricular planning, textbooks, equipment, course content, and facility sharing. In most instances, the tech prep programs involve business and industry, either in an advisory or a training capacity.

The demand for tech prep reflects needs generated by the changing economic, technological, demographic, and educational patterns in today's society and work force. One goal of tech prep is to link secondary and postsecondary curricula to prepare youth for work is a goal of tech prep efforts. Through such articulation, tax dollars are used more efficiently for education and training, avoiding duplication of programs and enhancing occupational preparation.

Lave, J. (1986). Experiments, tests, jobs and chores: How we learn what we do. In K.M. Borman and J. Reisman (Eds.), Becoming a worker. Norwood, NJ: Ablex.

This article documents several studies of how adults and children perform arithmetic operations in both natural environments, e.g., super markets, street markets, and a dairy, and how they perform comparable tasks in test-like situations that simulate natural environments.

Researchers found that in natural settings people are able to perform complex arithmetic operations which they usually cannot reproduce in experimental settings. The researchers hypothesize that the usual model for schooling which teaches subject matter in a decontextualized manner makes it difficult to transfer knowledge to workplaces or other real-life situations. They conclude that formal schooling and screening tests are not good predictors of how well a person will perform on a job.

One implication of the research for contextual education is that to the degree a school reflects the workplace or other natural settings and lessens requirements for students to master decontextualized knowledge, students will use skills and knowledge effectively and creatively.

Lund, L. & McGuire, E.P. (n.d.). Business' role in precollegiate education: A survey of impacts and attitudes (Preliminary Report). New York: The Conference Board, Inc.

This report is the result of extensive inquiry among business executives to determine their experience with, attitude toward, and aspirations for secondary schools. The report confirms the depth of corporate concern about "educational failure" and enumerates the ways in which businesses face the need for reversing current trends in educational excellence.

The impact of education shortfalls on business operations will be felt by all, as a quick review of current trends indicates that even industries that can now meet their workforce needs of technically literate young people from the present crop of high school graduates will find it more difficult to do so in the near future. Most executives believe that business involvement can have a major impact on the improvement of secondary education, especially on science and mathematics. Consequently, businesses have evinced closer relationships and an expanded interest in the local education system. Specific initiatives include providing equipment, study materials, and loaned facilities to high schools in the community; loaning executives as teachers; "adopting" a school; contributing financially to schools; and encouraging employees to volunteer in local schools.

The visible or perceivable assistance has been considered more effective and important in trying to make major improvements in school functioning. Three out of four respondents favored active encouragement for higher education standards; advocacy of means to raise the level of teaching competence; and the continuation and expansion of programs of assistance now deemed effective in upgrading secondary education by more than half of the participants--supplying equipment and teaching materials and the loan of personnel to local high schools.

Mangum, G.L. (1989). Youth transition from adolescence to the world of work. Washington, DC: The William T. Grant Foundation Commission on Youth and America's Future.

This paper describes the transition process and the institutions through which it is channeled, identifies the routes to success and failure, and offers recommendations for policy improvement and further research. Lessons learned include the following:

- The transition from adolescence into the adult work world is inherently difficult in a society which persistently separates the home and workplace and extends adolescence.
- Cultural norms, labor market realities and human development processes comprise the transition environment. While employers control and dispense jobs, youth ultimately must meet employer expectations.
- Irresponsibility is a more serious barrier to successful youth employment than inexperience and lack of skill.
- While job security is declining, employers seek the employed who can be trained and retrained, avoiding commitment to the peripheral group whom they prefer to employ only temporarily.
- The family is the single most important contributor or deterrent to the career success of youth.
- The discipline of successful school performance is helpful in preparing for labor market participation. Curriculum additions should include values clarification, assertiveness training, decision-making skills, and familiarization with labor market dynamics.
- Vocational education has suffered bad press because it has misconstrued its own best role.
- Apprenticeship's potential is very limited.

- Second chance programs of employment and training have made a modest contribution which can be strengthened with some reforms. Major advances are being made in alternative high schools with employer involvement. Local initiative is among their irreplaceable strengths.
- What is needed more than research to develop additional knowledge of the youth transition process is application of the knowledge we already have.
- It is possible to dream of an effort concentrated in the central cities on the now least successful--beginning with world of work-oriented parent effectiveness training; carrying on through career education supplemented by experience-based alternative schools and second chance programs; buttressed with a world-of-work curriculum emphasizing job-getting and job-keeping as well as job-doing skills; and supported by employers offering part-time and summer work experience and guaranteed placement to successful completers who are consistent performers.

McDonnell, L.M. (1989, November). Restructuring American schools: The promise and the pitfalls. NCEE Brief (No. 6).

This paper looks at the question of whether restructuring will really transform American education and improve student learning, and how feasible current proposals are. Whether significant and broad-based restructuring is possible will depend not only on how well various proposals increase student learning, but also on how well they can fit within political and financial realities.

Two problems motivate the current restructuring movement--the poor performance of the educational system and the changing nature of work and workers. Restructuring options, listed in order of prominence in reform discussions, are:

1. Decentralizing authority over schools, with three main options of school-based management, more professional teaching conditions, and family choice.
2. Holding schools more accountable.
3. Altering the content and process of classroom instruction.
4. Strengthening school-community links.

Most of the major pitfalls have not yet been addressed by reformers. The first pitfall is the fact that the link between American education problems and solutions must be made more explicit, to give policy makers and the public a basis for understanding what they would be purchasing with their money and support, and educators a clear gauge for judging the effectiveness of restructuring efforts. The second major pitfall is that reform efforts must acknowledge that education problems are multi-faceted, and some combination of reforms is needed. Third, scant attention has been paid to basic feasibility questions. Policy makers and educators need at least a rough balance sheet showing the relative feasibility of different alternatives. Finally, restructuring raises some profound questions, and the implications of changes for the allocation of democratic values need to be articulated before they are put into effect.

Meijer, K. (1991, November). Initial education and training in the United States of America: Policies, practices, perspectives. Brussels, Nijmegen: Petra Research Support Unit.

In the spring of 1991, the author of this report took part in a multi-regional, international group visit to the U.S. on vocational and technical postsecondary education. The report briefly describes the main features of the U.S. education and training system, and the five main pathways to obtain a vocational qualification (4-year college/professional school, technical institutes/vocational schools, 2-year community college, and skills centers).

The report then addresses the question of whether the U.S. education and training system is effective. The system was regarded as successful and effective at the level of individual schools/institutions, because of their emphasis on responding to local and regional needs, securing job placements for students, promoting credit transfer, accountability, and in-service training of teachers and flexible recruitment policies. The U.S. system was regarded as ineffective when analyzed from an "education and training system" perspective, because the dropout rate is too high, the academic standards reached by high school graduates are too low, too many students are not adequately prepared for the transition from school to work, and too few students acquire the vocational skills needed in a high-technology production environment.

The report concludes with the following examples of opportunities for U.S.-European Community cooperation in initial vocational training.

1. U.S. approaches of interest to the European Community include strategies to ensure that training is more responsive to present (and future) skills needs on the labor market, to make training institutions more accountable for the quality of their output, to increase the flexibility in the system to deliver training, and to increase the flexibility of staff recruitment policies. .
2. Europe approaches of interest to the U.S. include the design of a system for the classification of vocational qualifications in order to ensure a minimum level of quality in vocational courses and to serve as a basis for progression into continuing training, policies and approaches to provide training to all young people, and support to provide apprenticeship-type training for a larger target group.
3. Themes of common concern include the further introduction of structures to link education, training, and the world of industry; and the development of new approaches to integrate academic with vocational courses.

Michigan Council on Vocational Education. (1990, December). Promoting linkages with apprenticeship in high school: An option for students to become employable. Lansing, MI: Author.

This paper presents a background on apprenticeship and coordination between vocational technical education and apprenticeship training; some facts on apprenticeship-school linkages, including specific data on Michigan's efforts in this field; and recommendations to encourage additional high school apprenticeship experiences in Michigan.

The paper notes that the following advantages on apprenticeship-school linkage have been identified by reviewing authorities:

- official recognition through registering apprenticeship agencies that training meets accepted standards;
- opportunity for students to earn income while learning a trade and completing their high school education;
- job continuity for high school students following graduation;
- provision of a career ladder for youth after high school graduation with continued opportunities for skill development and wage advancement;
- opportunity for schools to establish a link with employers' needs for skilled manpower;
- real-world learning experiences within the school structure at minimal cost to the school because apprentices are provided with on-the-job training;
- an opportunity for employers to hire young workers who have been screened for interest and ability in skilled trades and who have received some training in these trades; and
- an opportunity for employers to train entry-level workers to meet their specific labor needs.

Mikulecky, L., and Drew, R. (1988). Basic literacy and communication skills for vocational training. In J.A. Pershing (Ed.), Bridging education and employment with basic academic skills. Bloomington, IN: Indiana University.

This paper reviews and synthesizes recent research on the literacy demands in the workplace and the abilities of various segments of the workforce. Some attention is given to the relationship of basic skills to job performance and the transferability of general skills from one project to another. Finally, an overview of effective programs and guidelines for developing such programs are discussed.

Some generalizations from research on workplace literacy include:

- Most jobs require literacy and computation skills.
- Workers read a variety of materials while this is generally not the case for high school students.
- Literacy and computation are necessary components of performing job requirements.
- Workplace literacy and computation often involve asking questions and gathering information from others.
- Workplace literacy usually requires regular use of higher-level application and metacognitive reading skills, whereas high school reading usually is for fact gathering purposes.

The changing nature of literacy requirements in the workforce requires development of effective training programs to address literacy deficiencies. Several military programs have successfully employed job-oriented training of personnel. One key to developing successful occupationally-related basic skills programs is awareness that the literacy requirements of the workplace differ significantly from those in schools. The literacy crisis is primarily a functional literacy problem where the ability to read and write is present, but not at levels necessary for the modern workplace.

Miron, L.F., & Wimpelberg, R.K. (1989). School/business partnerships and the reform of education. Administrator's Notebook, 33(9), The University of Chicago.

The authors of this report look at school-business interactions as a socio-political phenomenon, focusing on the likelihood that partnerships will produce educational change. They concluded that partnerships lead to relatively "conservative" behavior on the part of both business representatives and school people.

The report offers a typology based on two aspects of school-business interactions: the characteristics of the goods and/or services provided by the business to the school, and the potential that the provision has for changing curricular or core instructional technologies in the school. In the typology constructed, two tendencies were noted: business interests either start or end up with relatively "conservative" orientations to schools and instructional technologies, and school personnel tend to place a damper on partnership programs when they appear to alter working norms or threaten school control over decisions and programs.

The conclusion was that most of the investments represented in these partnerships are for expenditures that would be covered by a normal operations in a wealthier suburban school district. The question was raised of how many of the highly touted partnership programs merely compensate for meager tax bases in urban systems and hence, are not likely to lead to innovation or reform in those systems that need the most change.

Mortimer, J.T. & Finch, M.D. (1986). The effects of part-time work on adolescent self-concept and achievement. In K.M. Borman and J. Reisman (Eds.), Becoming a worker (pp. 66-89). Norwood, NJ: Ablex.

This paper addresses the debate concerning the benefits and costs of adolescent work experience. On the positive side, it is said that employment builds character by promoting responsibility, self-confidence, and a feeling of usefulness. The young person also learns how to behave in the workplace in a manner that may foster subsequent adjustment. On the negative side, some point out that youth may be prematurely inducted into the responsibilities of adulthood, and are sometimes exploited by employers.

This study suggests that the work experience of high school students and its effects on the achievement-related outcomes should be examined from multiple perspectives. Not only whether a student is employed, but the duration of the work, the number of hours spent at the workplace, and the particular character of work experience need to be assessed. The results of the study suggest that part-time youth employment, particularly when that employment is highly absorbing, of long duration, with long working hours, and substantial autonomy, can diminish commitment to school academic performance and aspirations and foster early induction into the full-time labor market. The student who becomes highly involved in work while still in high school acquires weaker educational credentials. Given that there are not enough jobs in the primary market to go around, his chances in the competition for the higher-paying, more secure, and career-like employment is therefore reduced. Moreover, amidst the widespread concern about declining achievement test scores, it seems self-defeating to encourage adolescent employment if this, in fact, diminishes enthusiasm for school and reduces academic achievement and attainment.

Mortimer, J.T. & Yamoor, C. (1987). Interrelations and parallels of school and work as sources of psychological development. Research in Sociology of Education and Socialization, 7.

This work is premised on the assumption that education has relevance for future achievements, attainments, and adjustments in the world of work. Insofar as the organization of schools, classrooms, and educational tasks encourage the internalization of orientations promoting self-direction instead of conformity, the learning of norms enabling the adaptation to formal organizational structures, the development of independence and coping skills, or positive self-conceptions, it is plausible to suppose that these psychological outcomes would have important consequences in adulthood--for adjustment to work organizations, occupational attainment, and performance on the job.

There is growing consensus among occupational social psychologists that experiences of self-direction and autonomy in the work sphere have the most profound effects on adult psychological development. From what is known about the psychological consequences of self-directed adult work, as well as from the investigations of the effects of autonomy in school, it would appear that most part-time "youth work" is far from optimal for adolescent development. In recent years, there have been strong recommendations on the part of national task forces for greater adolescent participation in the labor force. Much of this enthusiasm is premised on a dissatisfaction with the schools, a sense that the environment of the school insulates students from real-world experiences, problems, and, of even greater importance, contact with responsible adults. This paper briefly reviews what is known about the developmental implications of adolescent work experience and suggests negative, as well as positive, consequences of adolescent part-time jobs.

National Alliance of Business. (1989, September). A blueprint for business on restructuring education. Washington, DC: Author.

The Alliance has identified five components of education restructuring which address key questions and in which business has a collaborative role: school-based management, new professionalism, curriculum and instruction, accountability, and linking education and social services. Business' knowledge and expertise can assist educators in five functional areas: management analysis and improvement, advocacy, staff development, research and development, and application of new technology.

Critical ingredients that are common to successful partnerships include: identifiable leadership from business, education, government, and the community; a broad vision translated into practical objectives; an ongoing structure; and a clear, agreed-upon plan of action.

National Alliance of Business. (1987). The fourth R: Workforce readiness. Washington, DC: Author.

The fourth R--workforce readiness--includes reasoning, analytical, creative, and problem-solving skills, and behaviors such as reliability, responsibility, and responsiveness to new work requirements.

Business' return on investment in education includes significant economic and social benefits:

- business will get a literate, trained, skilled workforce;
- business will find a better business climate in the community; and
- business will gain a better competitive edge in the global marketplace.

While there are varying levels of involvement, and all are important, the large-scale, more intensive levels are what is needed. Types of partnerships include partners in: policy, systemic educational improvement, management, teacher training and development, the classroom, and special services.

Existing business-education partnerships are built on some important common principles:

- a common vision and agreement on the problem;
- a history of partnerships upon which a community can build;
- the presence of a viable business intermediary, such as the Private Industry Council, to help move the young people successfully from school to work;
- sustained top level school and business leadership involvement; and
- measurable, clearly defined goals.

National Alliance of Business. (1992, June). Real jobs for real people: An employer's guide to youth apprenticeship. Washington, DC: Author.

This publication is intended to serve as a guide for employers interested in establishing a youth apprenticeship program that will serve its labor needs. The report addresses the internal support that a business must generate and gives tips on choosing an educational partner. It includes a discussion of how to determine employee education and training needs, and how to meet those needs through youth apprenticeship. The guide covers the three different types of skills that comprise a youth apprenticeship program: academic, technical, and "employability" skills. The authors discuss approaches to classroom instruction and structured on-the-job instruction and address personnel policy issues such as pay, career ladders or lattices, recruitment, etc.

National Association for Industry-Education Cooperation. (1992, July). Developing industry-special education's joint response to changing demographics in the workforce. Buffalo, NY: Author.

This report addresses the implications of the changing demographics of America's workforce for persons with disabilities. Research suggests that the level and nature of employment options will greatly influence the extent to which handicapped youth are employed in the future. He noted that factors such as immigration policies, international business competition, and the extent to which technology affects the workplace need to be carefully monitored in terms of their impact on the employment of handicapped youth. According to surveys conducted in 1986, 87, and 89, of 13 million disabled persons of working age in the United States, only 34% work full or part time, leaving 66% unemployed. The majority of those 8 million unemployed persons wish to work.

Educational programs at both the secondary and postsecondary levels are not preparing students with disabilities for work force opportunities for the present or the future. Studies reveal that fewer than 15% of special education students were participating in postsecondary education and training a year or more after leaving high school, a strong indication that transition planning for students with disabilities continues to be deficient. The National Association for Industry-Education Cooperation has identified the following ten points as an action agenda of ten items to guide industry-special education's joint response.

1. These conditions call for real partnerships to improve curriculum, adult services, work experiences, and transition.
2. Place greater emphasis on exposing youths with disabilities to the expectations of the work environment to learn social and work skills essential to success; increase mentorships, cooperative education, summer work experiences, etc.
3. Employers and their employees must be educated about the needs and potential contributions of persons with disabilities to overcome misconceptions and prejudices and to increase the comfort levels of co-workers.
4. Create more school transition programs that are realistic and effective, coordinate with business and adult service agencies, and begin programs earlier (no later than age 14).
5. Basic academic competence must be taught, including basic math and English literacy skills, either before skills training, through a functional skills curriculum, or in integrated academic and vocational programs.
6. Career education and guidance must be integrated into each youth's educational program: motivation, orientation, exploration, and preparation (K-12), reflecting work force needs.
7. Linkages among vocational education, special education, vocational rehabilitation, other community agencies serving persons with disabilities, and business/industry must be strengthened (i.e. through regional consortia to coordinate services).
8. Expand use of supported employment, more worksite training, and job coaching.
9. Students and their parents must become self-advocates, learn how to use the system, and promote independence.
10. A variety of support services must be available to employees with disabilities and their employers (i.e. transportation, counseling, access to assistive devices, interpreting, and equipment modification).

National Career Development Association. (1988, May). Planning for and working in America: Report of a national survey. Ellicot City, MD: Author.

A Gallup Organization survey on various aspects of work in America led the National Career Development Association to make the following recommendations for change:

- While we strengthen our basic educational system we should pay equal attention to improving vocational education. Both basic skills and vocational education courses are useful on the job, and not enough emphasis is being placed on preparing non-college bound students for careers.
- State and local agencies, and non-traditional places such as public libraries, should help people access occupational information and develop the skills necessary to use it in career decision-making.
- Public school and postsecondary counseling, career counseling and development programs should be strengthened and expanded to provide services to those at greatest risk. Programs should serve all youth and adults needing career planning and assistance.
- Businesses should accelerate the development and improvement of career development programs that allow employees to seek new career options within the company. They should also try to alleviate job stress and enhance life role relationships.
- American business needs to contemplate the means by which employees are compensated and seriously consider placing greater emphasis upon involving workers more directly in making decisions that influence the workplace.
- Legislators and members of state boards of education should give serious consideration to enacting legislation and developing policies that stimulate more attention on career development and career planning specifically.
- All career development programs should devote time to identifying and dealing with illegal and/or unethical issues in the workplace.
- Existing programs and any new ones that may be developed should give minorities and the undereducated a high priority.
- To achieve equity and fairness, affirmative action programs and other efforts such as mentoring programs for women and minorities need to be strengthened.

National Center for Research in Vocational Education. (1992a, Spring). High schools with character: Why might they be important? NCRVE Change Agent (Vol.2, No.1), pp.2-5.

This article is based on the research of Charles Benson, Director of the National Center for Research in Vocational Education. Paul Hill of RAND is credited with coining the term "high schools with character," or HSC. The HSC and the conventional approach to high school reform agree that standards of instruction outside the college track are deplorably low, that the school day and the school year should be lengthened, and that student motivation is a major problem. The differences are twofold. First, HSC proponents feel that the conventional college-prep curriculum would not serve the needs of all students, even if virtually all students mastered it. The main reason for this position is the difficulty many people have in transferring college-prep learning from the classroom to their lives as workers and citizens. The second difference is the assertion that high schools can serve the large majority of students successfully if, but only if, profound changes are made in the ways that learning materials are presented, in the ways that students and teachers do their work together, and in the provision of a strong element of "character" or "focus" in the identity of a high school.

The four pillars of high schools with character are the following: 1) integration of academic and vocational studies, 2) cooperative learning on the part of students, 3) collegial work on the part of teachers, and 4) a special school identity, commonly established through an industrial connection. High schools with character are important in educational reform for various reasons:

- If there is a substantial proportion of students who can perform better in HSC than in the traditional college-prep programs, then the establishment of such schools would improve access to learning and would be a major gain in making equality of opportunity a reality.
- HSC are not necessarily more expensive than regular schools, especially if the school obtains some equipment and supplies from its industry connection.
- HSC are relevant to the needs of our economy. To avoid falling into a "low-skills equilibrium," schools should seek to send into the workforce people who can combine three roles--that of worker, learner, and teacher.

National Center for Research in Vocational Education. (1992b, Spring). SET and JAM systems: Implications for education. NCRVE Change Agent, (Vol.2, No.1), pp.12-14.

Recent research on employment practices in the United States has described an emerging employment system characterized by a high degree of employment security based upon flexible job assignment, employee improvement in problem solving and continuous improvement, and continuous training of all employees. This article labels these work practices the SET system (Security, Employee involvement, and Training), and contrasts it with JAM (Job classifications, Adversarial relations, and Minimal training), and discusses the implications for education.

JAM is the employment system that has prevailed in most unionized firms during the past fifty years. Security is determined by seniority within a narrowly defined job classification, employment involvement is impeded by a traditional adversarial relationship between union and management, and firms make only a limited investment in training hourly employees. American firms, both with and without unions, are being urged to move toward SET on the grounds that SET will make U.S. producers more competitive in the world markets, maintain high wages and living standards, and provide more satisfying working conditions as well as a more equitable distribution of employment and income.

The research suggests three kinds of implications for schools. These pertain to the teaching of students in initial education, further education and training of adults, and the restructuring of the work process within schools themselves. With regard to the teaching of students during their initial schooling, K-12 and postsecondary, the description of the SET system reinforces the current widespread interest in making sure that students develop general capacities for problem solving, communication, and continued learning. In addition, successful participation in a SET system requires positive motivation to think constructively about problems at work and how to make improvements in the work processes. To develop these capabilities and motivations presumably requires a more team-based, project-oriented, problem-solving method of instruction. It would also be beneficial to include more school-supervised work experience in the curriculum, so that students can practice learning in the workplace. Concerning the further education and training of adults, schools also have a role to play in helping currently employed adults adapt to changes in their workplaces. Finally, SET can serve as a model for restructuring the work of teachers in schools and colleges. Most teachers already have greater employment security than other occupations, and also have relatively abundant opportunities for continued training. What is clearly lacking for most teachers is employee involvement. In particular, teachers are seldom organized into semi-autonomous work teams. Currently, many efforts to "restructure" school governance are attempting to give groups of teachers more decision-making authority over such matters as curriculum, instructional materials, scheduling, evaluations of peers, and budgets.

National Center for Research in Vocational Education. (1992c, Spring). An uncommon education: Interaction and innovation. NCRVE Change Agent (Vol.2, No.1), pp.6-8.

This article provides some practical recommendations for schools attempting to integrate secondary vocational and academic education. Recommendations grew out of a research project involving two high schools, one an urban site and one a rural site, and include the following:

- In order to get the most out of the collaboration between academic and vocational teachers, be modest in your beginnings, and increase the complexity of the project in a stepwise way. Start with two, possibly three, teachers.
- Watch for two signs to see that it is time to add another teacher to the collaboration. The first sign is a secure feeling by teachers that they will be able to move ahead with success. The second sign is questions which arise out of the problem of study which would benefit from the knowledge of one or more additional vocational and/or academic subjects.
- Allow for educational serendipity in planning and practice. The results of collaborative intervention will only be obvious after the fact. The more teachers and students learn about their fields of interest, the more they can learn.
- Working together as academic and vocational teachers does not mean "turning your back on" or ignoring specific skills, be they vocational or academic. The uncommon education described in this report is not a zero-sum game. Rather, teachers and students, by working together, gained in general education, and the interaction helped to sort out what was important in the curriculum.
- Become aware of and try to understand the framework for the proposed subject matter of vocational education and the role of collaboration as a way to enter the conversation about these matters, develop your own perspectives, and shape further directions.

The report also provides many specific examples of "educational interventions" and collaborations. The author proposes an interactive and process matrix integrating vocational and academic specialties, citing the objectives, means, and outcomes for the various actors. According to the observations of the researchers, several factors helped make the collaborations successful: the flexibility of the teachers, the student-centered classrooms, and the project-centered structure of the classrooms.

National Center on Education and the Economy. (1990, June). America's choice: High skills or low wages! (Report of The Commission on the Skills of the American Workforce). Rochester, NY: Author.

This report argues that our nation is attempting to compete on the basis of low wages and low skills, rather than high skills, the result of which can only be a declining standard of living. By contrast, many of our major foreign competitors are building their economies on higher skills and higher wages. America will no longer be able to put a higher proportion of our people to work to generate economic growth. If basic changes are not made, real wages will continue to fall, especially for the majority who do not graduate from four-year colleges. The gap between economic "haves" and "have nots" will widen still further and social tensions will deepen.

If we are going to ensure a more prosperous future, we must improve productivity and our competitive position. This can only be done by developing a better educated, better trained workforce; by committing as a society to prepare every young person, in or out of school, for high performance work; and by encouraging employers to reorganize work in more productive ways. A five-point plan is proposed:

1. A new educational performance standard should be set for all students, to be met by age 16. This standard should be established nationally and benchmarked to the highest in the world.
2. The states should take responsibility for assuring that virtually all students achieve the Certificate of Initial Mastery. Through the new local Employment and Training Boards, states, with federal assistance, should create and fund alternative learning environments for those who cannot attain the Certificate of Initial Mastery in regular schools.
3. A comprehensive system of Technical and Professional Certificates and associate's degrees should be created for the majority of our students and adult workers who do not pursue a baccalaureate degree.
4. All employers should be given incentives and assistance to invest in the further education and training of their workers and to pursue high productivity forms of work organization.
5. A system of Employment and Training Boards should be established by Federal and state governments, together with local leadership, to organize and oversee the new school-to-work transition programs and training systems proposed.

National Occupational Information Coordinating Committee Training Support Center. (1992, Spring). NOICC career portfolio project links national career development guidelines to comprehensive school counseling programs. NTSC Bulletin, p.5.

This article describes a personal career development portfolio which is under development by the American School Counselor Association. Once fully designed and operating, the portfolio will become the communication linking students, schools, and the workplace and higher education or training. Its goal is to help every student reach higher standards to prepare for lifelong learning and productive employment. While the idea of a portfolio is not new, it is certainly a major focus of some of the restructuring efforts in the nation's schools. Essentially, the portfolio attempts to create a structured yet flexible means by which students beginning at the fifth grade level can collect information about themselves that can be used for developing personal decision making. Flexibility is built in because of the evolving and changing perspectives of students as they explore options and make tentative plans.

National Planning Association Committee on New American Realities. (1990). Preparing for change: Workforce excellence in a turbulent economy. Washington, DC: Author.

This report suggests ways in which business, labor, and government can more effectively help ready the nation's workforce for the future. If present trends continue, almost all workers will be "at-risk" from turbulence at some time in their working lives. This growth in employment risk underscores the need for new policies to ensure that every segment of the workforce has the opportunity to be more productive and that all those now at risk can share in economic progress.

Improving public and private policies directed at strengthening the nation's human resources is an urgent and important goal, and includes training for a turbulent environment, broadening job security, extending the income safety net, and partnerships for planning. The broad definition of workforce preparedness in today's economy involves a public-private system of human resource development that will provide all workers with new skills, encourage greater labor productivity, foster positive approaches to change among workers and their employers, and encourage greater economic mobility without economic loss.

Natriello, G. (1989, April). Do we know what employers want in entry-level workers? NCEE Brief (No. 2).

The research on which this summary is based examines a representative group of 14 recent surveys of employers' expressed needs and considers the evidence they present about the demands for worker education. The strongest trend noted was the importance employers place on employee attitudes. A second theme was the emphasis on basic skills as opposed to job-specific skills. Employers also place emphasis on an understanding of the work or business environment; realistic expectations about job content, wages, and skills; and an understanding of the business environment.

Employers' human capital needs, whether reflecting technical, control, institutional, or political forces, are quite real and have implications for hiring decisions. However, it is not clear that these needs have a strong objective connection to productivity. The relationship between employers' statements of their needs and productivity depends on the extent to which technical, control, institutional, or political forces influence their responses to questions about their human capital requirements. In other words, we need to be cautious in using the results of these surveys to direct school reform efforts, if our objective is to improve our economic growth.

Nightingale, D., Cohen, B., & Holcomb, P. (1991, July). Supportive services for youth (Issue paper No. 2). Washington, D.C.: The Urban Institute.

This review of the role and provision of supportive services in employment and training and other programs suggests that much more needs to be known about their effectiveness independent of other program services. The available information on supportive services in employment and training programs indicates that certain activities or services are commonly provided in programs with the purposes of both helping youth maintain their participation in a program, and helping youth effectively cope with life issues that surface as barriers to participation or as barriers to an ongoing climb toward self-sufficiency. To accomplish these goals, numerous services may either serve as incentives to attract youth to programs, help them overcome the material barriers to participation, assist youth to overcome social disadvantages, or help them effectively cope with serious health or mental health problems.

Within employment and training programs, supportive services are additional services--not the main focus of the program. However, in other youth programs it is often harder to distinguish between core and supportive services since the overall program goal is to overcome the barriers that might be addressed in employment and training programs with supportive services. In fact, these "other" youth programs may be the providers for certain supportive services to youth participating in employment and training programs. This overlap of services and goals within general youth programs makes it difficult to ascertain both the exact nature and impacts of program supportive services.

Despite limitations in the current state of knowledge, there is evidence that many programs serving at-risk youth adopt models that include case management and some degree of personal and supportive interaction between staff and clients. The intent is to develop self-esteem through on-going positive relationships between staff and youth participants. Youth are already receiving some additional nurturance through enabling compensatory, and therapeutic supportive services to youth in employment and training programs. Case managers not only act as brokers, but also serve as positive role models and interested parties for the youth.

Thus we can conclude that employment and training programs have begun to incorporate the service delivery models used by non-E&T programs into their supportive services. What remains to be learned is the effectiveness of specific services and service delivery approaches in E&T programs. The following recommendations suggest specific issues that might warrant further examination:

1. Federal regulations and guidelines should recognize that a large proportion of economically disadvantaged youth have multiple problems that require supportive services and possibly longer-term interventions.
2. The U.S. Department of Labor could help local programs better serve multi-problem youth by providing information on key aspects of what is commonly called case management as it relates to youth.

Research recommendations include:

1. The U.S. Department of Labor should consider sponsoring research to empirically document the types of supportive services provided to youth in JTPA programs, the extent to which supportive services are provided, and the relationship between supportive services and client outcomes.
2. The U.S. Department of Labor should sponsor a demonstration project which would use a randomized experimental design to evaluate the effectiveness of supportive services offered to youth participating in employment and training programs, and case management approaches to delivering services to youth.

Nothdurft, W.E. (1989). SchoolWorks: Reinventing public schools to create the workforce of the future. Washington, DC: The German Marshall Fund of the United States.

This report describes the findings of school and job training officials from West Philadelphia who observed youth employment and training programs in Europe. These observers felt that the basic principles of a coherent, comprehensive policy exist within the national experiences of our European competitors and the local experiences of some of our own pioneering communities. From the experiences profiled in this report, the following guiding principles for a coherent national policy on workforce education and skill development were garnered:

- Work is a central defining element of human existence; cash income payments do not substitute for work.
- Economic competitiveness depends upon creating and maintaining a world-class universal educational system.
- Work experience and work-relevant education are the keys to smooth school-to-work transitions.
- One outcome of education and training should be universally recognized and accepted skill credentials.
- Creating the workforce of the future requires partnerships and private sector participation.
- Excellence cannot be parachuted into schools; it must be built from within.
- There are no "quick fixes" for building workforce competence; long-term investments and programmatic variety are vital.
- Compulsory schooling alone does not, and probably cannot, produce fully work-ready workers; everyone needs further education and training.

Nothdurft, W.E. (1991). Youth apprenticeship, American style: A strategy for expanding school and career opportunities. Somerville, MA: Jobs for the Future.

The United States is the only industrialized nation without a formal system for helping young people make the transition from school to productive, skilled employment. Instead, the U.S. has a welter of education and training related programs that typically serve small and often marginal segments of the American labor force. These programs include secondary school vocational education, post-secondary vocational training, apprenticeship, cooperative education, school-based enterprises, academies, business-school partnerships, and tech-prep programs.

While the United States is not alone among the industrialized nations in facing stiff economic competition from low-wage developing nations, it is alone in facing that competition with a poorly trained workforce. Across Europe, but especially in Germanic and Scandinavian nations, strong universal programs--variations on the apprenticeship model--assure all young people an education that includes specific preparation for the world of work. Successful European youth apprenticeship programs have in common several principles:

- Every individual can make a contribution to the welfare of the community; work is the vehicle for that contribution and skill makes work possible.
- The key to producing a competitive workforce is a first-rate compulsory educational system with an explicit and significant work experience component.

- Compulsory schooling cannot produce fully-prepared workers; everyone needs further training.
- Post-compulsory school training must provide recognized, respected, and universally accepted credentials.
- Creating an educated and skilled workforce requires genuine partnerships between business, labor, and governments.
- Building workforce competence demands patience, experimentation, and long-term investment.
- When workplaces are also learning places, organizations have greater capacity to become more flexible, efficient, and productive, and economies have the potential for greater competitiveness.

At its simplest, American-style youth apprenticeship is a systematic mix of academic instruction in secondary and post-secondary schools with employment-based training of students--at a level of quality sufficient to certify the ability of individuals to perform entry-level tasks in skilled occupations capably and professionally. There are several premises upon which any such system must be based. The system must:

- recognize and accommodate the diversity inherent in the America populace;
- be part of a broad effort to improve the linkages between the world of work and the world of high school, and not just for those who are not college-bound;
- provide early exposure to work experiences and genuine opportunities for workplace learning, with training wages paid by employers;
- result in formal, universally-recognized credentials that meet nationwide standards that are the products of the collaboration of government, education and labor agencies, union representatives, and business associations;
- assure apprentices opportunities to go on to further education, should they seek it, after receiving their apprenticeship credentials; and
- encourage lifelong skill-building.

O'Neil, J. (1992, March). Preparing for the changing workplace. Educational Leadership (49) 6. pp.6-9.

Unless U.S. students are better equipped to enter a changing workplace, the financial future for graduates--and the economy as a whole--is likely to remain bleak even after the present recession breaks. Experts on education and the economy are worried by the growing gap they see between the capabilities of high school graduates, especially those not bound for college, and the skills, knowledge, and habits of mind that employers seek. These shortcomings have emerged at a time when the requirements for entry-level workers in U.S. businesses are likely to increase, if American industry is to compete globally.

Compared to some of its economic competitors, the U.S. lacks a real structure for preparing students to enter the transformed workplace of tomorrow. While many pieces are in place to help prepare U.S. students for jobs, they are somewhat uncoordinated, and, consequently, less effective. Students themselves are often left with the responsibility of forging the transition from school to work. The non-college-bound face additional obstacles such as reduced career possibilities, lower earning potential, weak curriculum, and the disconnection between work and school.

Although the gaps between schools and the workplace are many, there are some encouraging signs of progress. One is the continued erosion of the long-standing wall separating academic and vocational programs. A second is the appearance of better information about the skills, knowledge, and habits of mind that students need to be prepared for the workforce. A third positive indicator is the development of systemic plans to address the school-to-work transition issue. The most comprehensive plan to emerge on preparing youth for work is that proposed by the Commission on the Skills of the American Workforce. Oregon was the first state to pass a law that calls for the incorporation of many of the elements suggested in the Commission's report.

Osterman, P. (1991, July). Is there a problem with the youth labor market and if so how should we fix it: Lessons for the U.S. from American and European experience. Cambridge, MA: Massachusetts Institute of Technology, Sloan School.

This report points out that youth are marginalized in the labor market in all countries. This marginal phase can be a beneficial one if it is a time of building genuine skills appropriate to future economic demands. By these standards, the U.S. leaves much to be desired.

America has experimented with a wide range of solutions to the school-to-work transition dilemma, from extending the time students spend in school, to creating targeted training programs aimed at disadvantaged youth, to emphasizing broader reforms of the school-to-work process. In addition, it would be desirable to operate on the demand side of market by altering both the allocational rules employers use (via equal opportunity efforts) and by altering the distribution of jobs in the direction of better-quality opportunities. There is considerable discussion of the hypothesis that better-educated and trained youth would in themselves constitute an incentive for employers to adopt more skill-intensive production systems with better quality jobs, but the evidence on this point is very weak.

The author concludes that the best ideas seem to be keeping youth in school longer, connecting them to the labor market earlier, and inducing them to at least enroll in community colleges. These are the best lessons which can be learned--but they are clearly not enough. It seems certain that substantial numbers of inner city minority youth will not benefit. What we have learned, from here and abroad, suggests that the interventions in the youth labor market are too narrow a way to understand this issue. Broader and deeper interventions in communities, families, and schools are required.

Otterbourg, S.D. and Adams, D. (1989). Partnerships in education: Measuring their success. Largo, FL: InfoMedia.

MENTOR: a law-related program sponsored by the Federal Bar Council, New York Alliance for Public Schools and the New York City Public Schools. Initiated in New York City, MENTOR programs are now established nationally and internationally. Junior and senior high schools participating in the program are paired with general practice law firms or legal departments representing local government law, public interest and civil rights law, labor law, or corporate law.

NATIONAL ACADEMY FOUNDATION: The National Academy Foundation is a partnership among business, education, government and labor that provides leadership and resources to improve the education and career preparation of youth. Academy programs are house d in high schools as a two-year interdisciplinary program or juniors and seniors. Academies focus on the development of qualified entry-level personnel in rapidly expanding fields of financial services, travel and tourism, and other specialized industries. This case study focuses on the Academy of Finance.

PARTNERSHIP PROGRAM, LOS ANGELES UNIFIED SCHOOL DISTRICT: guides, monitors, supports and facilitates all forms of partnerships 1) between individual schools and private/public sector organizations and 2) across city regions or the entire school district. Partnership formats include: adopt-a-school, Applied Economics, Business Issues in the Classroom, Focus on Youth, Invent America, Law Day, Los Angeles Beautiful, Math, Engineering, Science Achievement, Project Business, small grants for teachers, Young Astronauts, Youth Motivation Task Force, and Regional Occupational Program.

SAN FRANCISCO SCHOOL VOLUNTEERS: is a partnership program based in the San Francisco Unified School District with the following five major components: Adopt-A-School, The Law Education Partnership Program (a MENTOR program), CAPS (a corporate "release time" program), Administrator Training Program, and Project Think/Write (evaluation highlighted in this case study).

STATE OF SOUTH CAROLINA EDUCATIONAL IMPROVEMENT INITIATIVE: Business support to public schools has been an integral part of South Carolina's statewide school improvement effort since the passage of the SC Education Improvement Act of 1984. This Act, built on earlier legislation, guarantees each student the availability of minimum educational programs and services appropriate to individual needs and provides the funding for the base educational program. Business leaders across the state were not only instrumental in ensuring that their recommendations became part of the new law, but they also continue to serve on committees that 1) monitor how well the law is working and 2) make certain that there will be sufficient, consistent funding of education programs. For example, business helped support, prod, and facilitate the passage of a one penny sales tax increase. School/business partnership programs have become an essential component of this statewide school improvement effort. Partnerships between schools and businesses include alliances between one school and one business, programs in which a business "adopts" and entire school system and local or regional collaboratives which include all community partner groups.

PROJECT STEP: is an entry-level job skills training program for high school students throughout California. Through the program, students are trained in 55% of Security Pacific Corporation's and its subsidiaries' 600 California offices. The training is offered in partnership with over 200 of the State's school districts. The evaluation of the PROJECT STEP program in the Los Angeles Unified School District is highlighted later in this case study.

THE PORTLAND INVESTMENT: is a citywide partnership in the form of a 10-year action plan. The INVESTMENT concentrates on recruiting professional expertise to provide targeted assistance and opportunities for youth who have been designated "at-risk." By drawing on the available public and private sector leadership in the Portland area, the INVESTMENT seeks to integrate the services of existing programs and public agencies, coordinate these programs and agencies, and link them to the resources of business and industry. As of January 1989, the PORTLAND INVESTMENT had developed 15 youth programs that address major issues affecting the targeted group. These issues include: dropout prevention, enhancement of academic achievement, improvement in employment skills, and increased access to jobs.

BALTIMORE GAS AND ELECTRIC'S PARTNERSHIP IN EDUCATION: provides financial, administrative, and volunteer support to education at many levels. The Company has taken a lead in developing working partnerships with schools in Baltimore and elsewhere in its services territory. The Company's partnership focuses on bridging the gap between the worlds of school and business by enriching school curricula. BG&E PARTNERSHIP program components include volunteers/mentors working with students on a weekly basis, development of a "Career Pool," career awareness activities, computer needs assessment s and training, teacher workshops, and parenting workshops.

ST. LOUIS SCHOOL PARTNERSHIP PROGRAM: develops collaborative relationships between individual classroom teachers, schools, and community resource personnel who are interested in providing educational support to the public schools. Through the partnership program, central office staff recruit outside sponsors with expertise in identified curricular areas to work jointly with teachers to plan, develop, and implement programs that 1) supplement regular instruction and curriculum and 2) enhance racial and cultural integration. These programs are implemented in city schools under an Intracity plan and in county schools through additional funding provided by a Settlement Agreement. Partnerships highlighted in this evaluation are the Junior Archaeology Program, the Teachers in Business Program, and the Cobblestones Program.

ADOPT-A-SCHOOL PROGRAM, MEMPHIS CITY SCHOOLS: is a partnership between Memphis City School System and community organizations. Through positive, working relationships, schools and their adopters plan, design, and implement activities to substantively support the goals of the Memphis City Schools: to graduate more highly qualified workers, educated consumers, and concerned, contributing citizens; to improve students' academic achievement; to reduce the dropout rate; to prevent substance abuse; and to build students' self-esteem.

DADE PARTNERS RECOGNITION PROGRAM: is a partnership program between the dade County Public Schools and over 900 partners from business, government, and the community. The program's goal is to use the tool of partnership to help solve some of the most difficult problems facing the school district's students. For example, partnerships provide rewards and recognition of basic skills; provide support for students with learning disabilities,; and facilitate dropout and substance abuse prevention efforts. The Burger King/Dade County Elementary Schools Recognition Program is highlighted in this case study.

EDUCATION FOR THE FUTURE: PACIFIC TELESIS FOUNDATION INITIATIVE: is a school site-based reform initiative to improve school performance in California. This project will assist schools to define their vision for the future, design and implement a strategic plan to achieve defined goals and objectives; and integrate effective management principles at the school site.

THE INDIANA PARTNERS IN EDUCATION PROGRAM: was a statewide program designed to build collaborative relationships among communities, business, and education throughout the State of Indiana. Partnerships were seen as an important "tool" to support Indiana's economic development strategy for the future.

Owens, T. & McClure, L. (1989, August 1). New developments in improving the integration of academic and vocational education. Portland, OR: Northwest Regional Educational Laboratory.

This paper addresses the challenges existing in secondary education, the need for integration of academic and vocational education, a framework for viewing collaboration, a summary of some models and effective practices, preliminary outcomes, and a statement of the authors' view of the job remaining ahead.

The National Center for Research in Vocational Education's evaluation of various efforts to integrate academic and vocational education revealed numerous preliminary findings, including the following:

- The basic skills and academic content included in vocational courses increases, as vocational teachers make more explicit the academic foundations of various occupations and as academic teachers find more vocational examples appropriate for integrated classes.
- The teaching of academic subjects often improves as academic teachers learn to use more applications and more problem-oriented approaches in their teaching.
- The content of the curriculum is upgraded as "general" courses--often watered-down academic courses--are replaced with more rigorous "applied academic" courses.
- The coherence of the high school curriculum is improved as vocational teachers, academic teachers, and counselors work together to define coherent sequences of courses and four-year programs of study that contain appropriate amounts of both academic and vocational subjects.
- Teachers--both vocational and academic--begin to share a sense of excitement about teaching, particularly as they find out how many ways they can improve their teaching through collaboration; and students become more excited about learning as they see more clearly the applications and the future importance of school-based learning.

Parnell, D. (1985, September). The neglected majority. Washington, DC: The Community College Press.

This book focuses on "ordinary students" who do not plan to go to college, and upon how high schools and community colleges might work together in behalf of this middle quartile of students. Secondary schools must be preparatory institutions for all students and not just for college-bound students. The current 25% high school drop out rate can be reduced if students understand the "why" of their learning as well as the "how." This means a breaking down of the walls between vocational and academic education. The largest volume of dropping out of high school occurs between grades 10 and 11. This volume can be reduced if students see a focused alternative-learning program that connects the curriculum with real life issues.

To accomplish this, the 2+2 tech-prep/associates degree program was conceived. Designed to be flexible enough to meet a variety of student, institutional, and community needs, this cluster of courses is based on the assumption that all of us function best when goals are clear and expectations are realistically high. Tech-Prep links vocational education programs offered at the secondary and postsecondary levels. The program advocates taking a step beyond the current and usually cosmetic high-school/college partnership arrangements into substantive program coordination. The 4-year 2+2 tech prep/associate degree program is intended to run parallel with and not replace the current college-prep/baccalaureate degree program. It will combine a common core of learning and technical education and will rest upon a foundation of basic proficiency development in math, science, communications, and technology--all in an applied setting, but with the tests of excellence applied to these programs as well as others. The high school tech prep program must dovetail with specific technical education programs on the postsecondary level. More intense technical specialization will be developed at the college level, always in tandem with broad technical competence and broad educational competence aimed at working in a wide-technology society.

Seven specific recommendations are offered for consideration in ensuring that excellence is cultivated in America's schools and colleges:

1. All students need a student-centered curriculum.
2. All students must experience greater structure and substance in their educational programs.
3. Students must see coherence in their educational programs.
4. Students must see connectedness between what they do and the larger whole--between education and the rest of the real world.
5. Students must experience continuity in learning.
6. Students must be offered a larger range of choices, so that their lives and work are not necessarily degrading, or boring, or limiting.
7. Students must see the necessity to continue to learn throughout a lifetime to avoid obsolescence and to develop the competencies to become lifelong learners.

PEI Quarterly. (1991, Fall). The transition from school to work. PEI Quarterly No.15.

This article describes the June 1991 Roundtable on school-to-work transition which was co-sponsored by PEI and the New Jersey State Employment and Training Commission. Speakers noted the transition from capital to knowledge as the premier wealth-producing asset and identified three forces having significant impact on the economy: the role of technology in the workplace, the influence of global competition and international organizations, and the gap between the skills of the workforce and the skills needed in the workplace.

The way America is doing business in the 1990s is the result of many changes, including a change in emphasis from productivity to industrial competitiveness, a shift from a quantity to a quality orientation, a redirection from a manufacturing to a service focus, a transformation from a standardized to a customized approach, and a refocusing from the domestic to a global view. American businesses and industries are also changing their internal "people" focus. The emphasis has moved from low- to high-technology skills and from an individual to a team focus. Organizations are changing from hierarchical forms to structures that emphasize commitment and empowerment. Other trends include a shift from job security to career security, from a union focus on wages and work rules to a focus on business success, and from rigid to flexible jobs.

The changing workplace necessitates changing skill needs. The only reasonable option for the United States is to improve the education of the future workforce and to address changing needs through continuing education. A total-quality approach is recommended, in which minimal skills to qualify for employment would be guaranteed. This requires communication between the world of learning, the world of policy, and the world of work.

PETRA: The European Community action programme for the vocational training of young people and their preparation for adult and working life. (1988, January). Transition education for the 90's: The experience of the European Community's action programme (Working Document). Brussels: Author.

This report contains an overview of the Second European Community Programme on Transition; the responses made by the 30 Pilot Projects to social, economic, and educational challenges; and policy conclusions and recommendations for education policy makers and practitioners.

The four main policy conclusions focused on partnership, innovation, European cooperation, and school self-review. Regarding partnership, the need for more interactive cooperation between schools and their local partners outside was perhaps the strongest stimulus in the majority of pilot projects. Concerning innovation, studies show that further development in the transition field should be coupled with a deliberate policy to strengthen the capacity of systems and individual institutions to manage change, and to explore and disseminate transferable experience. European cooperation must occur in the use of pilot projects, as demonstration and illustrative models. Finally, regarding school self-review, all schools should be involved in development work of some kind. Offering the schools the means to appoint a special coordinator for innovative curriculum action can provide a key to introducing a permanent stimulus to change and innovation at the level of the individual institution.

Some specific directions for future development in Member States' education systems will include the following action areas: schools and world of work, guidance, school failure and early dropouts, inservice training for teachers and school development, gender equality, support by parents, and cooperation at community levels.

Pettersen, L. (1992, March). Japanese high schools: Our new cross-town rivals. Educational Leadership, 49(6), pp.53-57.

The author of this article describes his visit to 15 modern Japanese schools, including a "media technology high school" and points to some major differences between the U.S. and Japanese education systems. In Japan, the government provides schools with state-of-the-art equipment, and there is a special relationship between industry and the Ministry of Education. Half of a school system's funds come from the federal government, and the other half comes from the prefecture. The Japanese school system is always first in line when it comes to Japanese funds

Although the United States will clearly not have a society where there is an interlocking relationship between public schools and huge private companies, we cannot get by any longer on complete separation. Many argue that the translator of our disparate efforts in the industrial and technical areas should be that great American educational innovation, the community college. The 1990 Carl D. Perkins Vocational and Applied Technology Education Act, which provides grants for high schools willing to work with a consortium of businesses and community colleges, promises new hope and firm direction, as does the national move toward 2+2 and tech-prep programs and Academies.

Pinebrook, S. & Bissonnet, D. (1992, May). Partners in education. Training & Development, pp.69-74.

The authors of this article discuss some creative solutions and new paradigms to help "public" education equip students with basic workplace skills. In considering how the free enterprise system, private corporations, and the public school system can and should work together to provide basic education, there are several basic issues that must be discussed.

First, what do we expect of education, especially in terms of work skills? Our definition of educated--or at least literate--adults cannot be divorced from the skills that are needed on the job, and today's workplace requires higher performance levels of traditional skills. Additionally, an increasing number of skills are being added to the list of basic skills.

A second issue is that of America's current record for our educational system, where the statistics of illiteracy and dropout rates reflect the deficiencies. We need to start looking closely at the more positive approaches for children. We must look at the hundreds of successful programs across the country which can and will teach us how to teach.

The third issue we must confront is the question of what kind of job companies themselves are doing--what programs exist to coordinate corporate efforts to improve public education? Research reveals that companies are doing a very good job of providing education, particularly when compared with the public school system. Evaluating such programs is difficult, but presumably corporations would not continue to fund programs, and workers would not continue to attend them, if they were not working. The Houston Business Promise is one example of an attempt to coordinate the business community and the public schools. Designed to bring together the resources of the private and public sectors, the agreement includes providing internships to local students, communicating job and career possibilities to local schools, offering financial grants, and encouraging employees to work with existing education organizations.

A look at corporations, institutions, nonprofit organizations, corporate programs, and government agencies makes it clear that the raw resources for turning back the tide of inadequate education are all around us. What is lacking is a new attitude: a paradigm shift that includes coordination of all the resources. The federal role of coordination of resources must be increased, and efforts such as the Houston Business Promise and the HISD Business/School Partnership should be models for efforts dedicated to encouraging excellence in education.

Public/Private Ventures. (1988). A practitioner's guide: Strategies, programs, and resources for youth employability development (Revised Edition). Philadelphia, PA: Author.

The program models described in this guide are aimed at correcting deficiencies at their foundations by building the four core competencies that most researchers believe young people must develop to make a successful transition into the labor market. Targeting services to specific populations is a first step, but these programs require a solid and flexible framework if they are to be effective. The critical element is matching: ensuring that the right youth are directed to the right programs at the most opportune times. For this to happen, there must be firm ties between schools, training institutions, and community-based organizations, the latter having a crucial role to play in identifying and recruiting key segments of the at-risk youth population, especially out-of-school, unemployed youth.

The guide describes eight service strategies, their broad description of goals, key features, recommended target groups and administrative issues, and program effectiveness, and provides examples of each. Strategies include basic skills enhancement, alternative schooling, work/study, job-readiness training, on-the-job training, residential training, and youth service corps.

Raizen, S. A. (1989, December). Reforming education for work: A cognitive science perspective. Berkeley, CA: University of California, National Center for Research in Vocational Education.

This paper attempts to bring together various streams of cognitive research and explore the implications for vocational education. The information is intended to contribute to the current debate about the nature of vocational education and the reforms needed by presenting relevant evidence from recent cognitive science research about how people learn to be competent in their work. Present-day impediments to providing the opportunity to participate in meaningful work experiences or effective simulations include the following:

- the increasing emphasis on school-based, formal education, both in school and even in out-of-school training, which has supplanted practical experience as a recognized learning situation;
- the current insistence on sequential learning of skill hierarchies without application to practice in context;
- the increasing technological and intellectual complexities of the modern workplace which make craft-style apprenticeship--largely based on observation, peripheral participation, and self-correction--ineffective;
- the organization and reward structure of work, which for the most part does not recognize the importance of tutoring and mentoring less experienced workers; and

- the common failure to provide the requisite work-linked education and training where individuals can take advantage of them.

Therefore educators need to design programs that meet the following conditions:

- integrate learning of basic skills with learning about the devices, systems, procedures, decision rules, and social interactions characteristic of specific work settings and responsibilities;
- provide most education for work in settings that reflect as closely as possible the work settings for which the individual is preparing, while ensuring that the necessary guidance and tutoring is provided;
- ensure that the education being provided is not limiting in its scope;
- take into account the personal lives of the student or novice worker and recognize the interrelationships that exist between healthy families, schools, and productive workplaces.

Resnick, L. B. (1987, December). Learning in school and out. Educational Researcher, 16 (9), 13-20.

In order to effectively address the literacy crisis in this nation, Resnick argues that a paradigm shift is necessary. She highlights the lack of attention given to the actual practice of literacy and the social conditions in which people engage in literate activities. Rather than focusing on competency and ability as necessary avenues for addressing literacy deficiencies, Resnick suggests that focusing on cultural settings where literacy skills are applied may be more fruitful. This paradigm shift necessitates altering the way literacy skills are developed. If literacy is viewed as a competency, deficits can be identified and remediated through instructional means. If, on the other hand, literacy is viewed as a set of cultural practices, then an appropriate response can be modeled after apprenticeship practices. This model emphasizes learning while engaged in actual practice of literacy, with very little time spent on decontextualized learning. Three forms of literacy practice are identified:

- Useful Literacy - literacy with an immediate goal in mind. Some examples include reading recipes, following assembly instructions, reading bus schedules, and filling out tax forms.
- Informational Literacy - not motivated by immediate practical utility, although it may have future practical uses. Some examples include information for personal interest, background information for one's profession, and newspaper and magazine reading.
- Pleasurable Literacy - reading as its own end. Novels, short stories, and other materials that are read simply for their enjoyment value fall in this category.

Resnick concludes that literacy apprenticeships are a more effective means of developing literacy skills. Literacy apprenticeships should incorporate the three categories listed above. Schools can become sites for literacy apprenticeships by using materials that simulate actual occasions for application of literacy skills in the adult world. Contextual learning is essential for the development of literacy skills.

Reubens, B. (1988, March). Education and training after basic education: The education-employment interface in post-compulsory education and training. Paris: Organisation for Economic Co-operation and Development Directorate for Social Affairs, Manpower, and Education.

This report addresses the education and training of young people after compulsory school. Using the available literature from selected Organisation for Economic Co-operation and Development (OECD) countries, the report sets the context of program choices in post-compulsory education and training, reviews the available evidence on voluntary combination and alterations of work and study at this level, analyses the early employment experiences of different populations of young people, and examines the needs for further research in the education-employment nexus.

The report notes that it was once common to view the transition from school to work as a swift, once-and-for-all movement in which a pupil was abruptly transformed into a worker. Subsequent thinking began to stress the length of the transition period--preparation for working life while still at school; followed by a substantial period after initial labor market entrance during which youth make a complex sequence of choices about occupational choice, mobility, job search, and further education-training; with all forces leading to gradual establishment at work. A current concern in many OECD countries is that the transition period itself has been greatly elongated and has become very difficult for youth because of high unemployment, the prevalence of part-time or temporary jobs, and the diminished number of jobs with work contracts. Whether all elements of this pattern will persist over the long term cannot be foreseen, but they are the consequence of exogenous economic forces, not of youth choices or education-training policies.

Robertson-Smith, M. (1990). Articulation models for vocational education (Information Series No. 343). Columbus, OH: The Ohio State University, ERIC Clearinghouse on Adult, Career, and Vocational Education.

This paper addresses the various types of articulation models being practiced across different levels of education. The author discusses the nature of different types of articulation, including time-shortened models, advanced skills models, and tech-prep models. In addition, the report addresses the five types of school-to-school articulation models that currently exist: tech-prep programs, cooperative education, proprietary schools, retention of at-risk students, and college-to-college articulation.

Nonschool partnerships are arising in response to the need for a high-quality work force and the projected skills gap. Three forms of nonschool arrangements are as follows: business and industry, government agencies, and military training.

Factors that inhibit successful articulation are institutional policies and procedures, negative attitudes and resistance of individuals responsible for implementing articulation agreements, and poor communication of information. Successful arrangements can be achieved through local and state leadership, involvement of key personnel, consensus on goals and purpose, formal written agreements, and positive human relations.

Roditi, H.F. (1991, August). How much does a youth apprenticeship program cost, and who will pay for it? (A working paper). Somerville, MA: Jobs for the Future.

This paper extrapolates from some existing school-to-career programs to estimate answers to the questions posed by the title. Its goal is to help program builders at the local level think through the implications of design on cost for schools and on the incentives for key funding partners. The programs explored suggest that school-to-career transition programs do tend to cost more than regular high school, and youth apprenticeship is unlikely to be an exception. These programs are funded by a wide variety of sources. School districts and state Departments of Education which fund these program are motivated by their interest in reducing drop-out rates and ensuring greater success among their graduates. In some cases, these programs are also a source of revenue for particular schools, as for example in California's academies. Since schools are compensated for students in attendance each day, the significantly higher attendance rate in academies partially offsets costs.

Three alternative models are described: the independent teacher team, the partially independent team, and a model with no independent team. Case studies of existing programs which exhibit the characteristics of each model are presented, and a proposal of how a youth apprenticeship program could be designed and funded is made for each model. General lessons are drawn regarding incentives, administrative support, development time, teacher development, teacher responsibilities, responsibility for hiring, joint planning period, block scheduling, counseling support, and summer orientation activities.

Rosenbaum, J.E. (1989, Winter). What if good jobs depended on good grades? American Educator, pp. 10-15,40-43.

The author of this article posits that if a clear link were made between jobs and school performance--if hiring were based on teachers' evaluations of students' efforts and achievement--we would greatly strengthen the weakened position teachers now find themselves in, and we would give students a clear incentive to work hard in school. The article describes Japan's methods of linking school and employers and considers whether aspects of this system would be desirable and applicable in the U.S.

Research shows that U.S. employers don't value grades as signals of productivity. Consequently, many work-bound students lack motivation to improve grades, and their lack of incentive undermines the overall sense of purpose in classrooms. Japan has dealt with this issue by implementing a system in which high schools are much more involved in allocating students into the work force than American high schools. Youth compete for jobs, based on grades, before entering the labor market, and teachers make the first selection. The Japanese advantage is for students in the bottom half of the class, who have much higher achievement than comparable students in other countries, and the Japanese system also contributes to more realistic aspirations for work-bound students.

Certain aspects of the Japanese system have applicability for American employers:

- Employers can show students that some desirable jobs are available to them.
- Employers can hire students before they leave school.

- **Hiring based on grades would give employers better information about students' skills and work habits.**

American schools can also take advantage of certain aspects of the Japanese system:

- Schools will be more effective if they have strong ties to employers.
- Schools can help advise employers and students.
- Schools can make their evaluations more useful to employers.

Scribner, S. and Sachs, P. (1991, December). Knowledge acquisition at work. IEE Brief (No.2).

The rapid transformation of the modern workplace has created a situation in which workers must learn new systems of knowledge while at work. This brief summarizes a research study designed to explore the nature of learning at work. To test the long-held assumption that schooling is necessary for effective job performance, the researchers investigated the impact of computer-based technology on everyday jobs and on learning at work. Since most studies of knowledge acquisition are based on learning in the classroom, this one concentrated on determining how learning at work actually takes place and in what ways learning on the job differs from classroom learning. Researchers compared the educational implications of two activities, working at planning and studying planning, only one of which (classes) is institutionally designed to promote learning.

Because of the exploratory nature of this study, the following are offered as suggestive rather than definitive findings:

1. Daily, everyday work activities are settings for learning. When workers participate in the performance of work tasks along with others, knowledge acquisition is an institutional by-product: the production of connectors also produces people who know about connectors and how to make them.
2. Without extensive academic, professional, or even on-the-job training, people can achieve conceptual understanding on the job. How the workplace is set up--not the presence of technology--is what enhances or inhibits learning. Whether in the workplace or the schoolroom, what is emphasized and encouraged in the setting helps people develop either a conceptual understanding or a highly routinized, inflexible set of responses.
3. Since people come to their jobs from a variety of routes, educational planners need to consider multiple and alternative educational forms as important as trying to design the "one best" training program. If people can develop conceptual understanding on the job without school-based training, the workplace is clearly a potential learning environment; the question is how to tap that potential.

Simon, R.I., Dippo, D., & Schenke, A. (1991). Learning work: A critical pedagogy of work education. NY: Bergin & Garvey.

With a manifold sense of purpose, work education programs have become a feature of a vast number of school districts and community service agencies not only in Canada and the United

States, but in Britain and Australia as well. Through discussions of teaching practice and actual lesson suggestions, this book attempts to clarify how the viewpoint of a "critical pedagogy" can be used to develop a clear and principled practice of work education. This type of education would provide students with an understanding of "the realities" of life in the job market and at work, while helping them to increase their effective participation in determining the practices that will define their working lives.

The authors assume a multiple audience for this book, including teachers working in a variety of forms of work education programs, community-based educators, and those educators and academics who have consistently complained about the lack of practical examples. The book emphasizes work education practice over abstract conceptualizations about practice. The body of the book breaks down into three sections: exploring technical relations (working knowledge, skills and work design, and teachers working with employers); exploring social relations (working through social relations, occupational health and safety, and the interrelation of work, desire, and leisure); and exploring work as an exchange relation (self-assessment, speaking out about pay, getting a job, and future work).

Spero, S. (1989, Spring). Coming choices for elementary and secondary education. Future Choices Toward a National Youth Policy (Premier Edition), pp. 6-21.

While significant reforms seem to be underway, the public school system remains in trouble. Perhaps our inability to close the education gap has been partially a consequence of a problem in education that is reaching crisis proportions--the difficulty in recruiting the best possible talent into the teaching profession. The other problematic component of our system is the growing body of poor, disadvantaged and minority students who are "at-risk."

This article defines the scope of the problem within our educational system today and gives some insight into the focus and priorities of current educational policy. Recognizing that past policy and legislation has shaped the educational system into what we have today, the author tracks historical legislation in elementary and secondary education, federal involvement in education, and necessary financial responsibilities for education.

Many state and local school systems are becoming aware that they cannot achieve the new educational goals of American society without significant restructuring of local systems. Some elements of restructuring being discussed are partnership, tech-prep education, choice, technology, and state-by-state reform. Education reforms either proposed or underway in most states can be summarized under the following categories:

- Teacher incentive programs
- Academic enrichment programs
- Educational partnership initiatives
- Leadership and management programs
- Parental involvement and choice
- Greater state assumption of educational cost
- Institutional and organizational changes
- Technological development
- Reading readiness

Stasz, C., McArthur, D., Lewis, M., & Ramsey, K. (1990, December). Teaching and learning generic skills for the workplace. Berkeley, CA: University of California, National Center for Research in Vocational Education.

This report documents the efforts of researchers to determine how students acquired "generic" as opposed to "domain specific" skills in selected vocational programs. Generic skills are defined as those that include "enabling skills" such as reading and writing but also encompass complex reasoning. Researchers observed vocational education classes to determine what generic skills are taught, what methods teachers used to teach them, and how the school context (teacher, student, and administrative factors) affected teaching.

Among the observed teacher policies which supported the teaching of generic skills:

- Students and teachers were on equal footing, and the teacher established herself as an approachable adult who was concerned about students' lives outside the classroom.
- The teaching style was one of a master/apprentice. The teacher was an expert practitioner of a craft who asked students questions and helped them identify resources, but seldom showed them what to do.
- The teacher assumed an adult learning model--that is, that the students were treated as mature, reasonably experienced and motivated people.
- The students were treated as if they were interior designers in "business."

The researchers also noted the following teaching techniques which strongly supported students' motivation to learn and succeed in the class as well as the development of "generic skills":

- The teacher encouraged boldness and independent thinking. This was more important to her than producing a successful project.
- Students were evaluated according to the effort and progress demonstrated in the class.
- The teacher dealt with students who were solving ill-defined problems by assisting them in refining the problem.

Steinberg, L., & Dornbusch, S.M. (1991). Negative correlates of part-time employment during adolescence: Replication and elaboration. Developmental Psychology, 27(3), 304-313.

This study examines the relationship between part-time employment and adolescent development. Long work hours during the school year are associated with lower investment and performance in school, greater psychological and somatic distress, drug and alcohol use, delinquency, and autonomy from parents. Workers do not have any advantages over nonworkers in self-reliance, work orientation, or self-esteem. The negative correlates of school-year employment are closely linked to the number of hours worked each week and generally cut across ethnic, socioeconomic, and age groups; in no subsample are the correlates of extensive employment positive. The findings suggest that parents, educational practitioners, and policy makers should continue to monitor the number of weekly hours adolescents work during the school year.

Stemmer, P., Brown, B., & Smith, C. (1992, March). The employability skills portfolio. Educational Leadership, 49(6), pp.32-35.

During the 1990-91 school year, Michigan schools piloted an innovative portfolio approach to enable students to discover, document, and develop their employability skills. The portfolios contain evidence of students' attainment of employability skills in academics, personal management, and teamwork. The basic premise of the profile is that learning is a lifelong process. Students are encouraged to recognize successes, seek opportunities to fill in gaps in skills, and gain confidence in preparing for work. The most common activity was to document the student's Employability Skills in existing Education/Employability Development Plans. These plans--created by students, usually with involvement by parents and counselors--explore career and college options, map out courses and schedules, and summarize interests and aptitudes. Business involvement can vary from having local business representatives review portfolios and provide students with feedback, to student visits to businesses and interviews with workers. Generally, schools that focused on students rather than on system planning were more successful in implementing the portfolios.

After the first year's pilot project, several issues surfaced which need to be addressed. First, future orientation workshops must emphasize how educators can enlist greater involvement from parents and businesses. Another goal is to create a meaningful scoring system that will give useful feedback to the state and local district for program evaluation and school improvement. And finally, more training is needed in a variety of assessment strategies.

Stern, D. and Nakata, Y. (1989). Characteristics of high school students' paid jobs, and employment experience after graduation. In D. Stern & D. Eichorn (Eds.) Adolescence and work: Influences of social structures labor materials and culture. Hillsdale, NJ: Erlbaum Publishing Company.

This chapter describes the prevalence of certain qualitative characteristics of teenage jobs as measured by a survey of young workers in 1979. The data indicate that there are indeed differences among jobs in quality and quantity of social contacts, opportunities for using and developing valuable skills, and the job's potential intrinsic interest to a teenager. In addition to summarizing the prevalence of these job characteristics by gender and race of the person reporting them, the study compares teenagers' and adults' characterizations of their jobs, and analyzes connections between teenagers' 1979 job characteristics and their subsequent experience in the labor market.

The conclusion of this chapter indicates that researchers discovered considerable variation in qualitative aspects of jobs held by students while they are in high school. One qualitative dimension in particular--the degree to which the student's job provides opportunity to use and develop valuable skills--is positively associated with success in the job market during the first three years after graduating from high school. This could result from a screening process, in which employers recognize the more able students and certify their ability to later employers by giving them more complex work to do. Alternatively, the association between skill use and development on the high school job and subsequent success in the labor market could result from differential amounts of learning on the high school job. Among other skills, students with more complex jobs may develop a greater capacity for learning in the context of work, a capacity which is said to be increasingly important in the changing national economy. These two interpretations have very different implications for policy. If more complex jobs enable teenagers to develop capacity for learning at work, then it would be beneficial to create more complex jobs for additional teenagers. If more complex jobs merely demonstrate a capacity the teenage workers already possess, then there is no point in trying to create more complex jobs for other teenagers.

Stern, D., Raby, M., & Dayton, C. (1992). Career academies: Partnerships for reconstructing American high schools. San Francisco: Jossey-Bass Publishers.

This book explains the unique design and functioning of a career academy--a vigorous school-within-a-school that focuses on career preparation. The authors also show how career academies go beyond traditional vocational programs to integrate academic and vocational curriculum, raise student ambitions, increase career options and provide a meaningful learning context for both potential dropouts and college-bound youth. The authors provide education policy makers, administrators, and teachers with step-by-step guidance for setting up career academies and highlight examples of exemplary career academy program.

Stern, D., Hopkins, C., Stone, J.R., McMillion, M., & Cagampang, H. (1992, September). Learning from school-based work experience. Berkeley, CA: National Center for Research in Vocational Education.

This paper describes a longitudinal study of high school and two-year college students. The purpose of the study is to measure effects of students' employment while in school on their subsequent education and labor market success. This report summarizes activities from 1988-1992. A brief summary of results to date includes the following highlights (references to studies are cited in the report).

Analysis of focus group interviews with high school students revealed that what students learn from their work experience appears to be centered around social skills (especially working with adults), taking greater responsibility than is usually given in school, problem-solving, and decision-making.

A preliminary statistical analysis was conducted to determine which students enroll in high school cooperative education. Eleventh graders who enrolled in co-op during their senior year were compared with classmates who went to work as seniors in non-co-op jobs. Predictors included demographic characteristics, family social background, educational expectations, and various measures of school performance. Discriminant analysis found that these characteristics did not successfully predict participation in co-op.

Several analyses have compared students in cooperative education with other students at the same schools or colleges who were also employed but not in school-supervised jobs. Results in both high school and two-year college indicate that students in cooperative education are most likely than the other employed students to more clearly see their jobs as part of their education.

Differences in perceptions of work between high school co-op students and their schoolmates in non-school-supervised jobs persist even when other student characteristics are statistically controlled. Controlling for grade level, gender, parents' education, reported grade point average, and expectations for further education, co-op students report more use of reading and writing on the job, use of other school-taught knowledge and skill, opportunities to learn new things, interest and motivation to do the job, and use in school of what they learn at work.

An inquiry into effects on students' general attitudes toward work was conducted with data from the two high school sites in the 1988 baseline. Regression analysis found that conflict between work and school was negatively associated with a general desire to do good work and positively associated with cynicism about work. Desire to do good work was stronger among students whose jobs gave them more opportunity to learn new things. Cynicism about work was stronger among students whose jobs did not make use of their existing skills.

Analysis of simple correlations between attitudes about work and family background variables found no consistent relationships, using data from the three 1989 high school baseline sites.

Students' descriptions of their jobs on various dimensions were compared with descriptions by their employers, using data from the two 1988 high school baseline sites. There was a tendency for employers to rate the students' jobs more favorably than the students did. The difference was slightly less between students and employers in school-supervised jobs than in non-school-supervised jobs.

In addition to supervising students' employment in off-campus jobs through cooperative education, schools also provide work for students in school-based enterprises such as restaurants and automotive repair services. Students' descriptions of working in school-based enterprises were compared with ratings by students in non-school-supervised jobs, using data from the two 1988 high school baseline sites. Pervasive differences were found, similar to those between co-op and non-co-op students.

As follow-up data have become available, the focus for analysis is now turning to the relationship between students' work experience while in school and their subsequent education and labor market experience.

Stern, D., Stone, J.R., Hopkins, C., & McMillion, M. (1990, December). Quality of students' work experience and orientation toward work. Youth and Society, 22(2), pp.263-282.

As the proportion of students in high school and college who hold paid jobs has gradually grown to a clear majority during the past four decades, concern has risen about possible negative consequences for the student-employees. The focus of this article is on associations between characteristics of students' jobs and their general attitudes toward work.

Among a sample of employed high school students, characteristics of their current jobs are significantly correlated with an index of motivation to do good work in general, and with an index of cynicism about work. A particularly strong finding is that students who report less conflict between their jobs and their performance in school express more motivation and less cynicism. Opportunity to learn on the current job and degree of physical challenge also stand out as predictors of motivation to do good work in general. Students whose current jobs make greater use of their skills and abilities are less cynical about work. If these correlations arise from a causal process in which current job characteristics cause students' attitudes to develop in certain ways, the implication is that employers and school authorities can influence the development of students' orientation toward work by enabling students to find jobs with these characteristics. In particular, helping students minimize the conflict between work and school would contribute to developing their motivation to do good work and would inhibit development of a cynical attitude.

Stern, D., Hopkins, C., Stone, J.R., McMillion, M., Cagampang, H., & Klein, S. (1991, August). Which students get the better jobs? Findings from a survey of working students in high schools. Berkeley, CA: National Center for Research in Vocational Education.

The fraction of high school students who hold paid jobs during the school year has gradually grown to a majority. Some of these jobs are better than others, and the differences could have important consequences for students, but no previous research has tried to explain which students get the better jobs. This paper reports baseline results from a new longitudinal study that has measured variation in the following attributes of students' jobs: use of reading, writing, math, and other skills on the job; opportunity to learn new things; degree of autonomy; amount of intrinsic interest in the work; and whether the job provides information or motivation that helps in school. Using data on 878 employed students in two Midwestern and two Southeastern school districts, a statistical model is used to determine whether each of these attributes is associated with various student characteristics, and with whether the job is a school-supervised work experience. School supervision is found to be the most consistently significant predictor of students' job quality.

Sticht, T., Mikulecky, L. (1984). "Job Related Basic Skills: Cases and Conclusions", Ohio State University: National Center for Research and Education.

The authors identify recent trends which reveal the changing nature of job skill requirements including the following:

- Most occupations require a high level of basic skills, i.e. 10th to 12th grade levels, although the applications of these skills may be diverse.
- In addition to reading, writing, and computing, workplace demands require utilization of these skills for problem solving on the job.
- Some evidence indicates a relationship between basic skill levels of workers and job performance, however the relationship is not overwhelming or direct.
- Some evidence suggests that employers are taking a larger role in providing basic skill training, but this training is more likely to be in job-specific literacy skills.

Conclusions drawn from three case studies indicate:

- Rapid gains in ability to comprehend technical material is possible if the training is focused on that material.

- General literacy improvement is not noticeable as a result of job-related basic skills training except in situations where sufficient time is spent on task (i.e. 5 hours per week) with appropriate materials.
- Integrating basic skills training and technical training produced the best results.
- Training that incorporates job simulation and applications of literacy increases trainee time on task.

As a result of the conclusions drawn from the case studies several guidelines and methods for developing basic skills programs are suggested. These include:

- Organizational mission - structure job-related basic skills training according to the goals of the organization rather than the needs of the individual.
- Functional context - skills are best learned in contexts which are meaningful to the learner. Therefore training should incorporate job reading and numeracy materials and tasks.
- Time on task - each trainee should spend the greatest amount of time possible actively engaged in a learning task. Program developers and operators should ensure that the conditions of learning are structured accordingly.
- Competency-based mastery learning - skills and knowledges should be related to the person's occupational setting, and competency levels set accordingly.

Stone, J.R. (1992). School-to-work transition: Definitions and directions (Draft paper for discussion only). St. Paul, MN: National Center for Research in Vocational Education.

This discussion paper was developed to accomplish four objectives. The first is to place the problem of school-to-work transition in it proper context by examining the sources of the problem. The second objective is to examine present and possible perspectives on what school-to-work transition means. The third goal is to discuss the appropriate foci for assessing school-to-work transition programs, and the fourth objective is to examine methodological issues, including a brief overview of existing pedagogy that enhances school-to-work transition.

The paper concludes with a discussion centering around the fact that schools cannot materially affect the labor market. As a result, it makes little sense to hold schools, or specific programs within schools, accountable for placement into specific occupations. Schools can, however, develop the skills and knowledges presumed necessary for successful transition to the workplace. Making the school mirror the world into which students will eventually find themselves is one important way to smooth the transition from adolescence to an important adult role: worker. Old models of transition like cooperative vocational education are part of a larger set of models that include school-based enterprises and youth apprenticeships, all of which can be designed to mirror the workplace. By making work and education more related and more relative to the lives of youth, and by connecting youth to real productive work, perhaps we can overcome some of the factors that currently plague this nation's efforts to help its youth become successful adults. At the same time, work in this nation needs to change. The workplace should become more of a learning environment, not solely for the benefit of adolescents who may work there. The workplace needs to change for the larger purpose of helping U.S. firms surviving the turbulent transition into the global economy.

Stone, J.R., Stern, D., Hopkins, C., & McMillion, M. (1990, Spring). Adolescents' perception of their work: School supervised and non-school supervised. Journal of Vocational Education Research, 15(2), pp.31-53.

Most adolescents work while in high school. A small percentage work as part of a school-supervised program and obtain academic credit. The question that arises is whether there is a relationship between participation in a school-supervised work experience program and socially or academically desirable outcomes. Initial findings reported in this article suggest that students who participate in such programs have higher quality jobs that make greater quality use of academic skills, provide more contact with adults, experience more challenge on the job, and consider their work meaningful. Students in these programs also perceive a closer relationship between work and school.

Tan, H., Chapman, B., Peterson, C., & Booth, A. (1991). Youth training in the United States, Britain, and Australia (R-4022-ED). Santa Monica, CA: RAND.

This report presents cross-national analyses of self-reported, formal job training, and labor market outcomes of that training among male youth in the three countries of the United States, Britain, and Australia.

American youth appear to get little formal training upon entry into the labor market. However, the U.S. training system is less bleak if youth are followed over time, as a high proportion of males receive training as they acquire work experience. Much of the training in Britain and Australia is concentrated in the first few years, with subsequent job training proceeding at a slower pace. Cross-national comparisons of entry-level training are thus potentially misleading because of these institutional differences; comparisons of training over the work career are more appropriate, and in this regard, American youth appear to accumulate job skills at a much faster pace than their counterparts in Britain or Australia.

In all three countries, better-educated youth were significantly more likely to get training, especially company training, which has the greatest influence on raising wages and reducing the likelihood of unemployment. The effects of union membership on youth training were fairly similar in all three countries. Among nonapprentices, union members were more likely to get both on-the-job training and school-based training, but typically at the expense of company training.

Formal training reduced the likelihood of experiencing a spell of unemployment. Mirroring the wage-training results, the unemployment-reducing effects of training ameliorated with the passage of time. The authors' conclusion was that in the youth samples studied, there is no empirical support for policy concerns about technology-induced youth unemployment.

Task Force on Creating Career Pathways for New York State Youth. (1992, September). Education that works: Creating career pathways for New York State youth. Albany, NY: Author.

This report presents the findings of the Task Force on Creating Career Pathways for New York State Youth regarding the need to better prepare young people to compete in the labor market.

The report addresses the need to change the entire continuum of public education to create learning environments and an integrated and flexible system of education, training, and work experience. At the secondary school level, students initially should work toward earning a Career Pathways Certificate (CPC) that would certify their mastery of rigorous academic fundamentals and entry-level workplace skills at a world-class level. A high school diploma representing demonstrated mastery of academics and employability skills should be the benchmark following a CPC, and young people would have the option of earning non-baccalaureate Professional and Training Certificates.

Toch, T. (1991, June 3). Why apprentices are rarer than diamonds. Financial Times.

This article compares the absence of a system for non-college-bound youth in the United States to the similar state of Great Britain. The difference is that most American politicians and businessmen still do not recognize or acknowledge the problem. Both the U.S. and Britain have superior universities, but their education systems fail to serve the needs of the bottom 70%.

In contrast, Germany has a huge advantage in vocational and technical training, and nearly all employers spend big money training school-leavers in their apprenticeship programs. Unlike young Germans, Americans who do not attend college cannot take pride in a widely respected practical qualification.

A few Americans are beginning to press for reform. The Commission on the Skills of the American Workforce recently published "America's choice: High skills or low wages," which outlines a strategy for raising average skill levels modelled on continental European practice. The document also proposed a system of technical and professional certificates, and stated that all U.S. companies should devote at least 1% of payroll to training.

Unfortunately, "America's Choice" and similar reports have had relatively little impact. The problem continues to be the lack of rigorous vocational training, and hence respect, for the bottom 60-70% who form the non-graduate backbone of the flagging U.S. economy.

United States Department of Education, National Assessment of Vocational Education. (1989, July). Summary of findings and recommendations (Final Report: Vol. 1). Washington, DC: Author.

The National Assessment of Vocational Education (NAVE) has studied the implementation of the Carl D. Perkins Act of 1984 and the status of vocational education at the secondary and postsecondary levels. The conclusion was that the basic goals of increasing the access of special populations to high-quality vocational education and improving the overall quality of programs are sound, but the legislation is a weak instrument for achieving these goals. NAVE recommended the following fundamental changes in policy in order to better achieve these goals:

Policy recommendations for secondary vocational education include:

- Revise and rebuild the high school vocational curriculum to upgrade skill levels and provide different students with the mix of occupationally specific and transferable skills they need to get good jobs or to pursue further training and education at the postsecondary level.

- Integrate high school academic and vocational curricula so that students come to vocational programs well equipped with fundamental academic skills and so vocational courses provide an applied context that reinforces and enhances academic skills and motivates students to excel in both academic and vocational courses.
- Accelerate the education of at-risk students by providing them with the extra assistance they need to succeed in demanding and highly rewarding vocational courses.
- Expand efforts to place students in good jobs that make full use of their vocational and academic training.
- Improve the linkages between secondary and postsecondary training so that training is complementary for the large group of students who obtain training at both levels.
- Raise the quality of vocational programs in schools with high concentrations of poor and low achieving students.

Policy recommendations for postsecondary vocational education include:

- Improve rates of program completion and placement in training-related jobs.
- Provide special assistance to at-risk populations for whom the problem of noncompletion is most serious.
- Improve the transition from secondary to postsecondary vocational education in a way that results in a more coherent and comprehensive training program for students.

United States Department of Education, Office of Vocational and Adult Education. (1991, March). Combining school and work: Options in high schools and two-year colleges (U.S. Government Printing Office No. 296-197/40487). Washington, DC: U.S. Government Printing Office.

This report is a discussion of the role of vocational-technical education in the transition from school to work. Youth employment and training policy has evolved toward greater coordination of supply-side and demand-side programs at the local level. The essential idea is that improvement must occur jointly in employee's skills and in the organization of work.

There are two types of programs: those that integrate work into learning, and those that utilize curricular links between academic and vocational courses. The more traditional structured work experiences include cooperative education, apprenticeships, and school-based enterprises. Integrated curriculum programs are a newer course of action and include tech-prep programs and vocational academies.

Incentives for academic teachers to try the curricular linking of academic and vocational courses include the following:

- Students are drawn to advanced courses because of their practical relevance.

- Cognitive science research emphasizes better learning through authentic application--"situated learning."
- Qualifying for high-wage jobs allows students to spend more time in studies during college.

United States Department of Education, United States Department of Health and Human Services, & United States Department of Labor. (1991, July). Making the connection: Coordinating education and training for a skilled workforce (Report of the proceedings of a national conference for state leaders). Washington, DC: Author.

The Secretaries of the U.S. Departments of Education, Health and Human Services, and Labor have committed their agencies to coordinating programs and services of job training and education that prepare the nation's workforce for productive employment. This report describes the proceedings of the national conference which was held to bring together state leaders responsible for administering programs under the Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990, the Adult Education Act, the Job Training Partnership Act, and the Job Opportunities and Basic Skills Training program of the Family Support Act.

Participants developed a model coordination scenario, and current coordination efforts in Georgia, Illinois, New York, Oregon, Texas, and Wisconsin were presented to stimulate discussion of various coordination approaches. The highlight of the conference occurred when participants from each state worked together to assess their own coordination efforts and formulate state policy recommendations to improve coordination. This report provides a summary of the dialogue.

United States Department of Labor, Commission on Workforce Quality and Labor Market Efficiency. (1989a). Investing in people: A strategy to address America's workforce crisis (A Report to the Secretary of Labor and the American People, No.029-000-0042805). Washington, DC: Author.

Demographic trends, technological change, and increased international competition already are creating shortages of skilled workers and an excess of unskilled workers, problems that are likely to worsen in the years ahead. In response, the Commission calls for:

- a public/private partnership under the leadership of the Secretary of Labor;
- additional human capital investments by states, communities, individuals, and American business;
- a reallocation of federal human resource expenditures; and
- a sustained increase in federal expenditures on human resource programs.

Regarding the foundation of workforce quality, developed in schools, the Commission recommends:

1. The president should lead governors, mayors, educators, the business community, parents, and all citizens in developing specific national education goals and timetables. The goals should include: reducing school dropout rates; increasing

attendance rates; improving test scores and achievement levels; increasing parental participation; and ensuring that our nation's youth graduate with the basic skills necessary to be successful in the workplace.

2. The business community should increase its presence in the schools, work with parents and school personnel, talk directly with students, and show through their hiring and promotion decisions that academic achievements will be rewarded. Increased involvement of the business community will be particularly valuable in low-income urban areas.
3. Schools should encourage the business community to provide the information needed to develop classroom instruction that anticipates emerging workplace needs. These techniques, emphasizing less interpersonal competition, more cooperative effort, and increased problem-solving abilities, should be used throughout a child's entire education. Schools should also create the flexibility of schedules and educational formats necessary to enable students of different abilities to meet the higher standards of performance that are required by employers.
4. Schools should offer applied instruction, such as vocational technical education, that emphasizes transferable academic skills including reading, mathematics, science, communication, and problem-solving.

5. The Secretary of Education should institute a review of post-secondary admissions policies and their implications for the performance of students who aspire to post-secondary education. The review should focus on opportunities to inspire elementary and secondary level students to prepare more diligently for college study.
6. Primary and secondary schools, in partnership with the business community, should encourage the pursuit of scientific and technical courses of study, particularly by minority and female students. Given the absence of an adequate supply of elementary school teachers able to teach science, federal and state governments should give immediate priority to: the development of a kindergarten through twelfth grade plan of study in the sciences; the design of a curriculum that provides hands-on experience of children of all ages; and the more effective use of talented science teachers and community resources. In the long run, special attention should be given to the creation of an adequate supply of elementary school teachers able to teach science.
7. High school students who excel in science and mathematics should be rewarded with business internships or grants for further study.
8. Schools should develop easily understood transcripts which, at the request of students, are readily available to employers. These transcripts should contain documentable measures of achievement in a variety of fields, as well as attendance records. State governments should provide assistance to facilitate the standardization of transcripts so that they will be more easily understood.
9. National educational and employers' associations should work together to develop easily understood credentials, based on voluntary achievement testing programs, that assess student proficiency levels in a wide variety of academic and vocational areas. Testing programs must be accompanied by efforts to equalize resources across school districts.

10. Schools should work with State Employment Security agencies and Private Industry Councils to establish school-based employment services with direct connections to employers. Employers, both large and small, should be encouraged to provide information on job openings and to consider filling vacancies with recent accomplished high-school graduates. Students should be provided with evidence that the system works for those who have the necessary skills.
11. State departments of education should improve instruction by developing teaching opportunities for individuals who have substantive competencies but lack education training, by instituting more rigorous testing of new teachers and by requiring retraining of existing teachers who lack substantive competencies.
12. Teachers who do their jobs well, either as individuals or as members of school faculties, should be recognized and rewarded, both professionally and financially. All levels of government should work with the private sector to establish incentives for teacher excellence.
13. Federal, state, and local governments should increase their efforts to give public recognition to school administrators and school systems whose students and teachers display significant gains. Additional funding for the National Assessment of Educational Progress would facilitate such efforts.
14. The United States Department of Education, in cooperation with state departments of education, should encourage experimentation involving fundamental restructuring of schools. Encouragement should include grants, technical assistance, and regulatory flexibility. The business community should offer schools the benefit of its experience in organizational restructuring.
15. The federal government should create a tax credit to encourage employers to increase expenditures on education and training.
16. The federal government should encourage the provision of basic skills education, as well as specific job training, by providing technical assistance and collecting information on "best practices." In particular, the use of computerized training methods should be encouraged through the dissemination of information on the use of computers in military, apprenticeship, and other forms of training.

United States Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training. (1989b, August). Apprenticeship 2000: Short term research projects (Executive summary). Washington, DC: Author.

This report contains executive summaries of a series of short-term research projects conducted by independent researchers as part of the Apprenticeship 2000 review. The aspects covered include: issues relating to expansion of apprenticeship to new industries and occupations; issues and barriers relating to women in apprenticeship; federal and non-financial incentives for apprenticeship programs; vocational education, counselling, and information process; issues relating to equal opportunity apprenticeship regulations; state role and responsibilities in apprenticeship; ratios; and teaching and learning on the job.

United States Department of Labor, Employment and Training Administration. (1989c, November). Work-based learning: Training America's workers. Washington, DC: Author.

In the past, The Department of Labor (USDOL) has focused its resources and attention almost exclusively on the needs of hard-to-serve population groups, including at-risk youths and dislocated workers. Marketplace circumstances, both national and international, now drive the need for additional emphasis on training and retraining issues affecting all workers. The following recommendations pertain to a new role for the USDOL, and propose a two-tiered strategy for raising the skill level of America's workforce to strengthen and preserve the current apprenticeship system and encourage expansion of structured work-based training which incorporates successful features of apprenticeship:

- Expand structured work-based training programs through development and implementation of new training program models based on features of apprenticeship.
- Establish a national work-based training body to recommend policy and provide direction for supporting and assisting in the delivery of work-based training programs.
- Streamline and coordinate Federal regulations and policies affecting apprenticeship in order to encourage expansion of the basic apprenticeship model.
- Improve administration of the existing system so that it operates effectively and fairly.
- Enhance the recognition value of program sponsorship and certification of skill attainment by instituting program criteria designed to ensure quality.
- Develop work-based learning alternatives for non-college-bound youth to assist them in effectively making the transition from school to a meaningful career path.
- Provide additional incentives to encourage employers to adopt structured work-based training programs.
- Intensify publicity at the national, state, and local levels.

United States Department of Labor, Employment and Training Administration. (1992). School-to-work connections: Formulas for success. Washington, DC: Author.

This report is based on a study of a number of successful school-to-work partnerships throughout the country, and it identifies factors that contribute to successful partnerships as well as problems that may arise during the life of the partnership. The booklet offers guidelines about how to set up school-employer partnerships based on how others have planned, organized, operated, promoted, and funded their programs.

The authors do not attempt to set forth a model program; rather, the booklet was written to share information about strategies that work in helping students make the school-to-work connection. The programs upon which this report is based are highly diversified in terms of participants, training designs, type and size of populations served, and geographic distribution. All of them have been in operation for at least two years and all have generated outcomes that confirm their validity.

The following keys for successful partnerships are recommended:

1. Partners should develop a clear, shared vision of intended outcomes and should be particularly sensitive to one another's individual objectives.
2. Educators should adopt a private sector industry perspective.
3. Partners must allow for the fact that much time is required for the formulation of stable, lasting partnerships.
4. Partnerships must foster climates of negotiation and cooperation.
5. Developing the partnership around a single school or school system eases the burden of administration.
6. Employers of all sizes and types should be included in school-to-work partnerships.
7. Partnerships must foster open, honest, and frequent communication.
8. Commitment must come from the very top levels of participating organizations.

United States Department of Labor, The Secretary's Commission on Achieving Necessary Skills. (1992, April). Learning a living: A blueprint for high performance (ISBN 0-16-037908-3). Washington, DC: United States Government Printing Office.

In this final report of the Secretary's Commission on Achieving Necessary Skills (SCANS), the authors recast the broad principles set forth in their first report, What Work Requires of Schools, as the context for their recommendations:

- The qualities of high performance that today characterize our most competitive companies must become the standard for the vast majority of our employers, public and private, large and small, local and global.
- The nation's schools must be transformed into high-performance organizations.
- All Americans should be entitled to multiple opportunities to learn the SCANS know-how well enough to earn a decent living.

To make these principles a reality, SCANS recommends:

1. The nation's school systems should make the SCANS foundations skills and workplace competencies explicit objectives of instruction at all levels.
2. Assessment systems should provide students and workers with a resume documenting attainment of the SCANS know-how.
3. All employers, public and private, should incorporate the SCANS know-how into all their human resource development efforts.
4. The Federal Government should continue to bridge the gap between school and the high-performance workplace, by advancing the SCANS agenda.
5. Every employer in America should create its own strategic vision around the principles of the high-performance workplace.

The Commission also advises full implementation of a series of recommendations involving reinventing schools, fostering work-based learning, reorganizing the workplace, and restructuring assessment.

United States Department of Labor, The Secretary's Commission on Achieving Necessary Skills. (1991, June). What work requires of schools: A SCANS report for America 2000. Washington, DC: U.S. Government Printing Office.

This report by SCANS, the Secretary's Commission on Achieving Necessary Skills (Department of Labor), began in May 1990. The Commission spoke with people at all levels of the school and work arena, and arrived at three major conclusions:

1. All American high school students must develop a new set of competencies and foundation skills if they are to enjoy a productive, full, and satisfying life.
2. The qualities of high performance that today characterize our most competitive companies must become the standard for the vast majority of our companies, large and small, local and global.
3. The nation's schools must be transformed into high-performance organizations in their own right.

The workplace know-how identified by SCANS as necessary for solid job performance is made up of five competencies and a three-part foundation of skills and personal qualities. Regarding competencies, effective workers can productively use: resources, interpersonal skills, information, systems, and technology. Competence requires a foundation of basic skills (reading, writing, arithmetic and mathematics, speaking, and listening); thinking skills (thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning); and personal qualities (individual responsibility, self-esteem, sociability, self-management, and integrity).

United States Department of Labor & United States Department of Education. (1988). The bottom line: Basic skills in the workplace. Washington, DC: Author.

This joint publication of the United States Department of Labor and the United States Department of Education provides statistics and examples of workplace literacy. The report first establishes the premise that there is a basic skills problem in the workplace, and then provides guidance and specific directions identifying and solving literacy problems.

School reform now will not take care of the needs of those who drop out or those who are currently in the workforce. These people will comprise 75% of the labor force for the next fifteen years. Workplace research indicates that the kinds of reading, writing, and analytical tasks which workers perform routinely are different from those students are taught in schools or in general adult literacy programs.

Guidance on identifying workplace literacy problems emphasizes spotting the symptoms, pinpointing the source, and performing a literacy audit. Assistance in solving these workplace literacy problems includes designing the training program, setting the goals, assessing available resources, recruiting the trainees, working with partners, building the curriculum, and evaluating the program. The bottom line is that business and industry are going to have to pick up a greater portion of education, but the returns will be tenfold.

United States Department of Labor & United States Department of Education. (1990). The school-to-work connection (A report on the proceedings of "The Quality Connection: Linking Education and Work"). Washington, DC: United States Department of Labor, Employment and Training Administration.

This report on the proceedings of "The Quality Connection: Linking Education and Work" contains abstracts of presentations from many representatives from the worlds of business and education. Participants addressed the need to link business and education for the economic security and prosperity of our nation, and discussed the facts concerning how the U.S. prepares its youth for employment, as compared to other countries. Business and education leaders also considered the theoretical ways in which they could work together most effectively, and then examined real-life examples of work and learning partnerships.

United States General Accounting Office. (1992, March). The changing workforce: Demographic issues facing the federal government (GAO/GGD-92-38). Washington, DC: U.S Government Printing Office.

This report examines the implications of Workforce 2000 and Civil Service 2000 in the context of the federal government's ability to attract and retain quality employees. GAO attempted to determine whether experts generally agree that the changes cited in these reports would actually occur, and found that experts do not agree that labor shortages and skills gaps are likely to occur by the year 2000, but the demographic composition of the labor force has changed and will continue to change. Critics asserted that what labor shortages occur will probably not be widespread but confined to certain industries, occupations, and locations. They also noted that the skill requirements of jobs will rise slowly, with fast-growing/high-skill technical jobs comprising only 4% of all jobs by the year 2000.

The changing demographic composition of the labor force is particularly present in the federal workforce. The federal government is not, however, a single entity, and demographic characteristics vary by agency. This report points out that federal policymakers and workforce planners can take action now to respond to changing demographic conditions by ensuring that policies address issues such as child and elder care and flexible work programs.

United States General Accounting Office. (1990a, May). Training strategies: Preparing noncollege youth for employment in the U.S. and foreign countries (GAO/HRD-90-88). Washington, DC: U.S. Government Printing Office.

A GAO study examining the efforts of various countries to develop a well-qualified noncollege youth work force showed that the U.S. devotes insufficient attention to preparing noncollege youth for employment.

The four competitor nations (England, Germany, Japan, and Sweden) tend to invest proportionately more than does the United States in noncollege education and training. Young adults in the foreign countries have higher literacy levels, and all students are expected to do well in school, where the U.S. often accepts that many will lag behind. The foreign countries help students learn about job requirements and assist them in finding employment to a greater extent than does the United States, with one major element being the involvement of employers.

Germany in particular and, more recently, England seek to maintain quality occupational training by testing and certification to meet national standards, whereas in the U.S., certificates often certify course completion and not necessarily attainment of skill levels. The foreign countries seek to assist youth who encounter employment problems.

The following policies were recommended for consideration by the federal, state, and local governments:

- Strive to ensure that all children attain the academic skills necessary to perform effectively in postsecondary education or the workplace. Notably, greater emphasis should be given to providing needed early intervention programs and adequate educational resources for all children.
- Develop more school-employer linkages, particularly to expand combined education and work (apprentice-type) programs to assist youth to obtain suitable entry-level employment.

United States General Accounting Office. (1991, August). Transition from school to work: Linking education and worksite training (GAO HRD-91-105). Washington, DC: U.S. Government Printing Office.

The purpose of this report is to examine the potential for expansion of school-employer linkages, particularly apprentice-type programs. The most prevalent of these programs in the U.S. are cooperative education programs, which the GAO felt appeared to be beneficial to students, employers, and the American economy. The expansion of cooperative education programs faces two principal barriers: lack of awareness about programs, and negative perceptions of program quality. Elements of quality cooperative education programs include:

- agreement to training plans by employers, students, and schools detailing both general employability and specific occupational skills that the students are expected to acquire;
- screening of applicants to assure that they are prepared to meet employer demands;
- selection of employers who provide training in occupations with career paths;
- adherence to training agreements outlining the responsibilities of students, schools, and employers; and
- close supervision of high school students by school staff.

Adopting skill standards and certification in the U.S. could benefit students and employers: students who pass tests based on nationally recognized skills standards could receive a certificate that serves as a portable credential, and employers could use the certificate as evidence of skill achievement in making hiring decisions.

To strengthen cooperative education, GAO recommends that the Department of Education:

1. Develop national data and conduct evaluations of high school cooperative education programs to help refine and improve program structure, as well as seek

opportunities to promote and expand high-quality cooperative education in our nation's schools.

2. Request states to encourage schools to provide students with completed training plans together with school and employer assessments, as a form of certification of students' skill attainment. Schools should consider the applicability to training plans of common skills standards being developed under the leadership of the Departments of Education and Labor.

United States General Accounting Office. (1990b, September). The urban underclass: Disturbing problems demanding attention (GAO/HRD-90-52). Washington, D.C.: U.S. Government Printing Office.

Most experts who have studied the issue have concluded that there is a growing underclass. The research to date regarding causation is inconclusive, in part because the available data are sparse and lacking in detail. This study's central purpose is to summarize what is known about policies and programs that might be useful in developing a strategy for responding to the problems of the underclass. Policies and programs have been grouped into those that address the persistent condition of poverty, those that emphasize social standards, and those that address urban spatial concentration.

Multiple problems affecting individuals create barriers to their entering the mainstream. From birth throughout life, many people are trapped in a cycle of persistent poverty. Programs that address the persistent condition of poverty can mean intervening early in the individual's life with prenatal and pediatric care and education programs. It can also mean intervening in adulthood by providing education, job skills, and job opportunities.

Intervention for older youth and adults are intended to give them the education and skills they need to succeed in the labor market. School-to-work linkages create networks that connect youth to employment. Some linkage programs include the structured work experience, job placement, and counseling services that relatively few schools currently provide. Others involve school partnerships with individual or groups of businesses that provide job opportunities for students. Traditionally, education and training programs for out-of-school youth and adults have provided a way to upgrade employment skills.

Specific federal initiatives include the 1982 Job Training Partnership Act, which represents the consolidation of many earlier government programs and provides services such as job search assistance, remedial education, and training for specific occupations. Government studies show that the hard-to-employ population would benefit from efforts to target JTPA at the more needy and provide them with more intensive services. The Job Corps is a federally funded job training program that provides intensive services which are found to have significant positive effects on employment and earnings as well as on reductions in welfare dependence, crime, and out-of-wedlock births.

Experts say that most people who are out of the labor force need basic academic skills such as reading and computation. One program noted for teaching those skills is the Comprehensive Competencies Program, which is being used by "second chance" programs, secondary schools, and postsecondary institutions, often in combination with other education, training, and work experience.

Vaughan, R.J. and Berryman, S.E. (1989, November). Employer-sponsored training: Current status, future possibilities. NCEE Brief (No.4).

Employer-sponsored training in the United States is a substantial human-capital-producing and wealth-producing system. The distribution of that training, its consequences, and the forces that are changing it have important public policy implications. How much and how well we invest in human capital will shape how fast national income grows, how fast we expand our capacity to produce, and how the benefits of development are shared.

The overall shift of employment from goods production to services means that more education and training are needed both to get jobs and to keep them. Currently in the United States, however, employers invest heavily in training their best-educated and best-trained employees. Training advantages include increased productivity, higher wages, and reduced likelihood of unemployment.

Both service and manufacturing industries have moved from a production-oriented world to a customer-oriented world, and from mass production to flexible production. These changes in orientation demand fast retooling, shorter production runs, and customized production and generate the need for different, better, and more generic skills, such as good academic skills, higher-order cognitive thinking, ability to self-direct, knowing how to learn, and teamwork abilities.

The growing acknowledgement of the economic importance of education demands a reexamination of all aspects of federal and state educational policy. Three suggestions are provided to encourage employers to train their workforce:

- Improve the verbal, quantitative, and problem-solving skills of high school students.
- Reduce administrative barriers to innovation in post-secondary training institutions.
- Rethink post-secondary education and training for the disadvantaged.

Vickers, M. (1991, August). Building a national system for school-to-work transition: Lessons from Britain and Australia. Somerville, MA: Jobs for the Future.

This paper asks what role governments can play in shaping the provision of education and training and influencing the decisions young people make about school and work. It contrasts developments in two countries--Britain and Australia--where the governments adopted decidedly different approaches to employment, education, and training policy during the 1980s.

The first lesson for the U.S. relates to work-based learning itself: where and by whom it should be presented, what purposes it should serve, and how it should be accredited. Britain's experience with the Youth Training Scheme shows that it is essential for work-based learning programs to be defined primarily as contributing to recognized educational goals.

The second lesson relates to the role and importance of policy coordination--to the need to establish consistency between federal, state, and local policies for income support, education and labor market training for young people. The lessons from Australia's experience with policy coordination are probably most applicable to the state governments in the U.S., since it is at this level that most education and labor market expenditures are controlled.

Walker, G., & Vilella-Velez, F. (1992). Anatomy of a demonstration: The Summer Training and Education Program (STEP) from pilot through replication and postprogram ideas. Philadelphia, PA: Public/Private Ventures.

The Summer Training and Education Program (STEP) research demonstration was initiated in 1984 to test the effects of a two-summer remediation, work and life skills intervention on the lives of 14- and 15-year-olds from poor urban families who were already seriously behind academically. The program provided youth with half-days of summer jobs, combined with half-days of remedial reading and math, with one half-day each week devoted to issues concerning decision-making and responsible sexual and social behavior in youth's everyday lives.

STEP's summer effects were consistently and impressively positive, but did not hold up once youth left STEP. Evidently, a positive and successful experience in work, education and life skills over two summers was not sufficient to alter the life trajectories of poor urban youth. STEP's major lessons can be summarized as follows:

- It is possible to produce improvements in the reading, math, and life skills of young adolescents in a short period of time.
- Accomplishing such improvements requires a businesslike approach to investments in innovation development.
- Innovative programs can be replicated with consistent practices and results across large numbers of varying locations.
- Short-term programs like STEP, even when they have positive short-term effects, are unlikely to produce long-lasting impacts. STEP's strength was its highly organized, intensive, and controlled involvement in each youth's life.

STEP's major lesson for policy makers and leaders is that short-term interventions do fill critical gaps in the lives of disadvantaged young people, but cannot alone provide long-term change. This does not suggest that short-term interventions have no role in a youth's development, as successful transition to adulthood depends on having a number of positive experiences. STEP's record in making productive use of a critical "gap period" for an adolescent living in a poor neighborhood suggests the potential usefulness of identifying other gap periods, such as after school and weekends, and investing in the development of innovative programming that can produce short-term educational gains and life skills development. STEP raises several critical questions about how more adolescents from poor families and communities can be helped to grow successfully into adulthood. The STEP long-term research also presents the formidable obstacles that poverty presents to all efforts to improve the life trajectories of children and youth.

Waltner, J.C. (1992, March). Learning from scientists at work. Educational Leadership, 49(6), pp. 48-52.

This article describes the structure and effects of the Indianapolis Public Schools Science Mentor Program, in which exemplary professionals help students in grades 7-12 to bridge classroom concepts to applications in industry and research. The program was established in conjunction with the Indianapolis Chamber of Commerce Partners-in-Education program, and is now part of the Math/Science Magnet programs. The goals of the Science Mentor Program are to:

- improve students' scientific and technological literacy;
- show them real applications of science, math, and communication skills;
- demonstrate the critical need for skillful problem solvers;
- identify career opportunities; and
- help students make informed curriculum and career choices.

Students participate in activities that demonstrate the application of science, math, computer, and communication skills as integral to successful work, and learn to use specialized instruments and procedures. Local businesses have shown a great deal of interest in the IPS Science Mentor Program, expressing both altruistic and self-serving reasons for their involvement.

Setting up a successful school-business partnership requires a committed school-based person who will make contacts with people in business and industry to solicit mentors, select and place students, and coordinate arrangements, transportation, and evaluation; a contact person is also needed at each business site; and the explicit financial commitment of both partners.

Weckstein, P. (1989, Spring). Youth, employment, and education. Future Choices Toward a National Youth Policy (Premier Edition). pp. 6-21.

Our educational system is very properly receiving attention about its wasteful failure to develop the full range of creative capacities of our youth, particularly those labeled "at-risk" who have traditionally fared least well in our schools, as in our other institutions. Rather than an educational system out of sync with an economy that is generating jobs requiring high skills which the schools are failing to impart, both the educational system and the employment system are out of sync with our real social and economic needs. We have both an educational system which fails to develop and an economy which fails to utilize the full set of capacities of our youth. Without an economy that creates enough high wage jobs which actually demand the full utilization of all our human capacities, it becomes much harder to get the schools to provide that kind of high quality education in the first place--just as virtually all our current social problems are made much more difficult by the absence of a high-skill, high-wage economy. Whether we move to a high-skill, high-wage economy is primarily a question of economic and political choices. The answer is not dictated by technology itself, cannot be based on assuming that our economy will automatically move in the healthiest direction, and cannot count on simply providing the economy with highly educated workers and magically expecting it to use their talents.

A new range of innovative and redirected federal programs could assist in the effort to move toward the kind of high-wage, high-skill economy that would call forth the full creative potential of our people and demand that the schools develop that potential. Especially important is coordination of all the efforts at the local level through democratic decision-making--and federal assistance in creating the structures to do so. Once economic development is seen as a process whereby communities utilize their resources, human and otherwise, to define and solve their social and economic problems and gain greater control over their destinies, then it becomes easier to stake out a role for the schools in that process which is consistent with their broad educational role.

Weinbaum, S., Mitchell, V., & Weinstock, R. (1992). Learning work: Breaking the mold in youth employment programs. New York: Academy for Educational Development.

This report comprises an account of a local initiative to demonstrate how employment training for out-of-school, economically disadvantaged youth can be made educationally vigorous. It involves four training programs in New York City, and a few hundred students.

The report is divided into three chapters. The first presents the learning theories on which the project was based and the plan of action that helped to effectuate and institutionalize program change. The second chapter describes the project outcomes, providing a record of each program's efforts to implement the principles of the project, the barriers that were met, and the strategies used to counter them. These are presented in detail to serve as a kind of handbook for those who may wish to undertake similar change ventures. The third chapter discusses the policy implications of what was learned. The two major policy implications were as follows:

1. To develop an effective program, there must first be an educational vision.
2. To meet the future needs of the most poorly educated of our young people, programs must engage them in learning by providing extrinsic and intrinsic reasons to participate.

Weisman, J. (1992, March 29). Skills and schools: Is education reform just a business excuse? The Washington Post. pp. C1, C4.

The premise of this article is that experience of employers and an avalanche of new data suggest that skills shortages among high school graduates have virtually nothing to do with the dwindling competitiveness of the American work force. Rather, as an economic agenda, education is purely a smokescreen for inactivity. The New United Motors Manufacturing Company is an example showing that given good work-specific training and a well-managed environment, U.S. workers can produce as effectively as their counterparts anywhere in the world.

A cadre of big-business leaders have raised the issue of the country's failed education system to the top of its social agenda, but they have done so to cover up decades of abysmal management decisions. Business' willingness to lambaste the public schools is more troubling when one examines the corporate community's incessant efforts to lobby for tax breaks and subsidies from local and state governments.

No one doubts that the American education system badly needs an overhaul, but it is extremely dangerous to saddle the schools with the nation's economic malaise, for several reasons. First, education must be more than a work force preparation station. Second, the first task of the limited education reform dollars must be to turn around the education system of the bottom third of the nation's students: inner-city children, mostly minorities, whose schooling is so woefully inadequate that they cannot hope to function in the American economy. Third, an education-centered economic policy would, if successful, only flood the job market with overqualified workers since the changes needed in the workplace will have been neglected. While it is true that low-skilled jobs are moving toward extinction, there is no concurrent spawning of high-skilled ones. Contrary to the political rhetoric, the U.S. will not need huge numbers of highly skilled workers in the future unless substantial changes are made in governmental policies and corporate practices.

The William T. Grant Foundation Commission on Work, Family, and Citizenship. (1988, November). The forgotten half: Pathways to success for America's youth and young families (Final Report). Washington, DC: Author

This report addresses the difficulties faced by youth attempting to enter the workforce. Non-college-bound youth in particular are beset with a series of circumstances that severely limit their prospects. The foundations for change are improved relationships with adults, increased family and community support, and better opportunities for education, employment, and community service. The Commission feels that the world around us has changed, but our institutions have not responded with the flexibility required to help us lay a new foundation under young families and their children. We have made schooling a synonym for education, and have defined its primary purpose as entry into college. Both of these attitudes are a mistake. Several principles guide the Commission's views, including the ideas that:

1. The major task at hand is to examine, evaluate, adapt, and extend what already works.
2. Consolidation of existing delivery systems is long overdue.
3. Targeted efforts are needed for many youth with special problems.
4. It is never too late to make a difference.

With these principles in mind, the Commission recommends four major strategies:

1. Enhance the quality of youth-adult relationships.
2. Expand community supports, with an emphasis on youth service and youth leadership activities, to help integrate all young people into their communities and the nation.
3. Extend and improve current employment opportunities for more non-college-bound youth.
4. Take a long stride toward more equitable youth education and training policies with a proposed new Fair Chance: Youth Opportunities Demonstration Act.

The William T. Grant Foundation Commission on Work, Family, and Citizenship. (1991). States and communities on the move: Policy initiatives to build a world-class workforce. Washington, D.C.: Author.

This report discusses new planning structures for human investment policies; new statewide school-to-employment transition policies; student apprenticeship, "tech-prep" and other experience-based learning initiatives; new "second chance" programs for dropouts; new partnerships between education and employers; new pathways to postsecondary employment; and creative financing mechanisms. Various state and community efforts to deal with the challenge of restoring American prosperity through the recreation of a world-class workforce are described.

The Work Education Bridge Project. (1988, Spring). Bridging education and employment with basic academic skills and how to gather and develop job specific literacy materials for basic skills instruction (vols. 1 & 2). Bloomington, IN: Indiana University.

The Work Education Bridge Project was designed to "develop a workable model that would enable vocational educators to teach basic skills in vocational settings." The first volume is an anthology of articles. It presents arguments for integration based on recent research in cognitive psychology on how people learn. It also presents summaries of research on literacy, on changes in the workplace, the kinds of literacy required in different types of jobs and workplaces, and examples of programs in which literacy skills have been successfully integrated into vocational training. Volume one presents an argument for integrating basic skills into vocational classes and having vocational teachers teach them. The authors believe that this is a more efficient use of time than having academic instructors learn vocational material. The volume includes discussions of literacy and communication skills, mathematics, science and computer literacy and their use in workplaces. The chapters are based on recent research, written by experts in the various domains and have extensive and useful bibliographies.

The second volume is a guide for vocational instructors for conducting literacy task analyses of a variety of jobs and for transforming the findings into curricula that integrate vocational and basic skills.

Yasuda, K.E. Sr. (1990, January). Working and schooling decisions: A study of New Hampshire teenage labor market behavior and the level of educational attainment (First Interim Report). NH: New Hampshire Department of Employment Security.

The preliminary conclusion of this study is that New Hampshire teenagers are working in record numbers, and it appears to be affecting their grades. High school students are more actively involved in the labor market than was previously thought. Preliminary analysis indicates that a strong negative relationship exists between the number of hours worked per school week and the self-reported grades in four subject areas. This may be due to time constraints and the self-selection process through which students who do poorly in school may recognize that their post-secondary educational opportunities are limited and may therefore choose to get a head start in the labor market.

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